

Amateur Radio

March 1997

Volume 65 No 3



Journal of the Wireless Institute of Australia



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- **The Federal WIA Budget**
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Cover

David Pilley VK2AYD operating W6Z on CW in the 1996 World Radiosport Team Championship. W6NA is in the background. For a full run down on the Australian team's participation in this prestigious event, see David Pilley's article on page 10.

BACK ISSUES

Available, only until stocks are exhausted, at \$4.00 each (including postage within Australia) to members.

PHOTOSTAT COPIES

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The opinions expressed in this publication do not necessarily reflect the official view of the WIA, and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Neil Penfold	VK6NE

Editor's Comment

A Torrent of Words

One of the topics most discussed at the last Publications Committee meeting was the trend by most of our columnists to write a little bit more each time. We know that all of our columnists have a devoted band of followers, and the information keeps on pouring in, full of interest to the dedicated readers. But the trouble is that space in the magazine stays fixed, so less and less is available for articles. You told us about a year ago that you all wanted Technical Articles more than any other thing. But there is less and less space for them!

We don't want to upset our enthusiastic columnists by wielding the editorial "blue pencil" (or "red ballpoint"). We would much prefer that they themselves "have a go" at pruning. I'm sure I've said before in these pages that "any fool can say in a thousand words what a genius can say in a hundred". We know you are not fools, nor geniuses in most cases, but perhaps a thousand words might condense to 750? No? 800? Please!!

With this issue, some of you will notice a different fly-sheet carrying your address. The Hamads form has been moved to the fly-sheet so you can send in a Hamad without needing to cut up the back page of *Amateur Radio*! Next month everyone will have the new fly-sheets, when the old ones are all finished, and the Hamads form will no longer be printed inside the magazine.

If you feel motivated to write in and tell us you like or dislike any feature of *Amateur Radio*, please do so! We appreciate feedback, and all suggestions are welcome. For example, we think our uncluttered cover style is better than the "pack 100 items on the cover" appearance of some competing overseas magazines. Do you agree? Tell us, please! How about presentation generally? *Amateur Radio* is YOUR MAGAZINE! Make it the way you want it.

Bill Rice VK3ABP
Editor

CONTRIBUTIONS TO AMATEUR RADIO

Amateur Radio is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk or via e-mail are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. A pamphlet, "How to Write for *Amateur Radio*", is available from vk3br Communications Pty Ltd on receipt of a stamped, self addressed envelope.

■ Federal QSP

Opening a Door to the Future

On 12 February, three of us from the Federal body – David Wardlaw VK3ADW, Roger Harrison VK2ZRH, and myself – took the WIA's submission on amateur licensing to the Minister for Communications and the Arts, Senator Richard Alston.

The Senator gave us a very good hearing, of about 35 minutes. He asked us a lot of questions about amateur radio and learned, as much as could be put across in the limited time, about the broad range of activities amateurs are involved in, the background to our hobby and why we need a licensing system of our own. Through his questions he learned we have bands spread through the radio spectrum and that amateurs are not assigned individual frequencies; of the value amateur radio provides to the community; that it is an international hobby involving self-training; and that amateurs are individually licensed and recognised internationally by the ITU and countries around the world. The question and answer session also covered satellites, communications support for emergencies, call signs and the examination system – Senator Alston did not realise amateurs had to be qualified.

He told his Liaison Officer present at the meeting that the submission was to go to the Department of Communication and the Arts. The Minister's Department will be conducting a review of the Radiocommunications Act and amendments this year.

As the Radiocommunications Amendment Acts had their first readings in Parliament early in December, I contacted the Minister that month to seek a meeting so that the Institute would not miss a timely opportunity to present the case for a better amateur licensing system. The Minister set the date. So, the presentation of the submission was very timely, as confirmed by the Minister's Liaison Officer.

Developing the submission has been a lengthy process. There are those that say it has taken too long. But really, "quick fixes" so often turn out to create more problems than they solve. They leave difficulties for "someone else" to tackle, later. We're trying to get something better for the future. Something that will last. Not something that just suits impatient amateurs now.

The process began with the Federal Council agreeing on a "framework", outlining the issues to be covered and leading to a proposal. This was agreed in mid-1995. Getting this framework required research of what the Federal Council had discussed and established in the past. A first draft was circulated to Federal Councillors in February 1996. From discussions and suggestions coming from that effort, the Exposure Draft was completed which the Federal Council agreed would be sent to

candidates for the March 1996 federal government election. It was also published in *Amateur Radio* and on the Internet.

As a result of that, when Senator Alston became Minister for Communications and the Arts, he invited the WIA to present the final submission once the process of amateur community consultation had been completed. The final draft of the submission was circulated to Divisions in January and I was pleased to see general agreement return from Divisions shortly before we met with the Minister.

We did not expect to "haggle" over details or terms with the Minister. Being able to meet the Minister and establish formal contact, and having the submission sent to the Department of Communications to be considered in the coming review of the Act and amendments, is a considerable achievement of which the Institute can be justifiably proud. When that review comes around, we will have further opportunity to advocate our case.

For now, the door to the future for amateur radio has been opened.

Neil Penfold VK6NE
WIA Federal President
ar

■ WIA News

Roger Harrison VK2ZRH, Federal Media Liaison Officer

Minister Sends Licensing Submission to Department

The Minister for Communications and the Arts, Senator Richard Alston, has sent the WIA's submission on amateur licensing to his Department, to be considered in a review of the Radiocommunications Act and amendments which will be conducted by the Department this year.

A delegation from the WIA met with the Minister at Parliament House in Canberra on Wednesday, 12 February.

The delegation comprised Federal President Neil Penfold VK6NE, the WIA's representative on the Radiocommunications Consultative Council, David Wardlaw VK3ADW, and the submission's author-editor, Roger Harrison VK2ZRH.

The Minister asked many questions about amateur radio and amateurs' activities. The main thrust of the Institute's submission was outlined,

that the present three licensing systems under the Radiocommunications Act were drafted to suit public and private sector commercial purposes and, for that reason, they do not suit the voluntary, non-pecuniary nature of the Amateur Service and radio amateurs' activities. The basic proposal of creating a separate licensing system under the Act was put forward.

In answering the Minister's questions, the topics covered by the delegation included:

- amateur radio encourages young people to take up an interest in science and technology, leading to careers in science and engineering (presently an important concern of the government);

- amateur radio involves self-training in radiocommunications and related technologies and techniques;

- amateurs must be qualified through a system of examination;

- amateur radio is an international hobby, recognised by the ITU under international treaties and regulations;

- amateur radio promotes international goodwill and understanding;

- amateur radio provides a regulated, yet self-regulating, outlet for people interested in transmitting, hence providing orderly use of the spectrum where otherwise there might be anarchy with clandestine stations;

- radio amateurs' activities provide value to the community through contributing to the advancement of science, the development of technology and support during community disasters and emergencies;

- that the WIA actively participates in spectrum management processes both locally and internationally, and that the Institute had provided – at our own cost – people to act on behalf of Australia on delegations to international regulatory conferences;

The Minister's Liaison Officer, present during the meeting, later said that the WIA's presentation of the submission was very timely.

The final draft of the submission was completed on 20 January and circulated to all Divisions that week. Following suggestions from some Divisions and discussions with David Wardlaw and Neil Penfold, a small amount of further information was

included and minor amendments made. The Federal Council was to consider publication of the completed submission at the Extraordinary Convention being held over 15-16 February (originally scheduled for 8-9 January, as advised in January *Amateur Radio*, but postponed by the Federal Council in January so that all Federal Councillors could be present).

The 33-page submission of five sections, with 28 pages in four appendixes, includes a four page Executive Summary. This sets out that radio amateurs require:

- individual licences;
- certainty of licence tenure;
- where fees are applicable, an equitable fees framework;
- certain and continuing access to frequency bands throughout the radiofrequency spectrum; and
- continuing participation in spectrum management processes at local, national and international levels.

The Executive Summary also outlines the WIA's arguments that the current three licensing systems have conflicting limitations, restrictions and administrative constraints for the Amateur Service; and that the fees framework for the Apparatus Licence system embodies concepts which are of a commercial, economic nature not applicable to the Amateur Service. All this leads up to the proposal to create a fourth licence type, specifically for radio amateurs which would recognise and provide for the complete flexibility

needed to pursue our activities, within the framework of allocated amateur bands and applicable licence conditions.

The submission specifically asks for recognition of the unique nature and status of the Amateur Service and proposes arrangements which would simplify government administration and reduce amateurs' "engagement" with the authorities through devolvement, citing the existing devolvement of examinations.

The submission argues that it would be open for the government to waive fees in recognition of the value the Amateur Service provides to the community, as has the US government. A copy of the joint resolution of the US Congress and Senate was included in an appendix. The submission also gives recognition to the fact that there is a necessary departmental cost in essential spectrum management and regulatory process, at national and international levels.

Development and presentation of the submission was only the first step in the process. The Minister's office has confirmed that there will be an opportunity to further argue our case and put additional material forward when the Department of Communications and the Arts conducts the review of the Radiocommunications acts and amendments later this year.

The WIA Federal Council is to consider further action in advancing the case for a licensing system for amateurs.

Government Promotes Year for Youth in Science

The Federal Government announced in January that 1997 has been declared the "Year for Youth in Science". Launched by the Minister for Science and Technology, Peter McGauran, the government will spend \$12 million over the next three years on activities to make young people more aware of science.

The Minister said, "Australia needs

more scientists, technologists and engineers, not more doctors, lawyers and accountants.

"Science and technology is Australia's number one wealth generator and holds the key to improving all of our lives," he said.

"We must develop a more positive attitude and a greater understanding in the general community of the role

science and technology plays in everyday life. Building this recognition will in turn lead to an increased demand for scientists, technologists and engineers, creating more opportunities for young people.

"Australia has a proud history in these fields and governments, the science community and the private sector all have a role to play in

ensuring this remains the case," McGauran said.

One of the major thrusts of the WIA's licensing submission covers the contribution amateur radio makes in encouraging an interest in science and technology, particularly among young people. The Year for Youth in Science provides an ideal opportunity to promote amateur radio among young people.

WIA Says No to Class Licence Devices on 70 cm

When the Spectrum Management Agency wrote to the WIA in December, seeking the Institute's "... views on a proposal to support class licensed operation of low powered devices in the band 433.05-434.79 MHz", the WIA said it did not support the proposal.

The SMA's letter, from the Spectrum Planning Team of the Business Directions Group, said that, "Over the last year, interest in Australia in the 433.05-434.79 MHz band for low powered applications has increased noticeably." The letter went on to explain that the SMA "... has received five business cases for consideration in the last three months, across a broad range of applications, and there are regular inquiries made to our Area Offices.

"The reason for this appears to be a growth in low powered applications sourced from Europe ... and the long standing designation in that Region of the band 433.05-434.79 MHz for industrial, scientific and medical (ISM) applications.

"The various European administrations support the operation of low powered devices on an uncoordinated, licence-exempt basis, in the aforementioned band where amateur services operate. We believe it is appropriate to offer the same uncoordinated, free of licence fee, opportunities in Australia, through our class licensing regime."

The SMA's letter highlighted applications supported under the European arrangements as motor vehicle radio keys, wireless stereo headphones

and low powered data transmission systems (eg wireless LANs). Radiated power limits specified range from 10 mW for vehicle keys to 500 mW for wireless data systems.

Requests to the SMA had been for devices radiating 25 mW or less, "... which we believe can be supported in this country on an uncoordinated basis," said the SMA. They proposed to allow all types of low powered transmitters to the 25 mW limit, without differentiating between possible applications.

In rejecting the SMA's proposal, the Institute pointed out the problems which had occurred in the UK last year, particularly with motor vehicle radio keys. Radio activated key entry (RAKE) devices, operating on 433.92 MHz, have been a problem in Britain as people had been locked out of their cars because strong UHF transmissions (from amateur, land mobile and military stations) had blocked the radio key (see *WIA News*, January 1997, p 6).

Wireless hi-fi headphones and loudspeaker systems operating on 433 MHz were in the news in Britain in January, with interference being the source of complaint, according to a report in *New Scientist* for 11 January (p 19).

While the European 433 MHz ISM band is used in the major Western European countries, it is not available in Britain, Norway, Finland or Denmark. European manufacturers of wireless headphones, Vivanco, Sennheiser and Philips, had been lobbying Britain's



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Department of Trade and Industry unsuccessfully for two years to allow the 433 MHz technology into Britain. Vivanco said they'd "given up on 433 MHz for Britain." It is not known which companies had approached the SMA in Australia.

In Australia, amateurs are a secondary service in the 420-450 MHz band, which is shared with the primary service, radiolocation, and with other fixed and mobile services (also secondary) used by the defence forces.

In replying to the SMA, the WIA pointed out that the 433-435 MHz sector of the 70 cm band was widely used by

voice and packet radio repeater systems, and other amateur operations which would be incompatible with having the proposed devices operating in that band. There was a high likelihood of interference to amateur receiving equipment and interference from amateur transmitters to the proposed low powered devices. In particular, vehicle radio keys employ tuned radio frequency (TRF) receivers which have poor selectivity and are susceptible to blocking and interference from transmitters up to 10 MHz away from the radio key's frequency, as had been experienced in Britain.

discussions with the SMA about the basis of beacon and repeater licence fee charging since this was introduced in 1995 with the new amateur licence fees regime, the Institute sought information on how this method of charging was determined under the Radiocommunications Act, the Regulations or any SMA Determinations. SMA Liaison Team investigations over 1995-96 had discovered that there was no clear path arising from the legislation or SMA Determinations which arrived at the instruction in RALI AM2. The Team also discovered that it had apparently been applied differently in different states, and even within states.

A reply was received from the SMA in January, which has been referred to the Federal Council meeting to be held over 15-16 February.

The actions of beacon and repeater licensees in forwarding information through the WIA Divisions for the SMA Liaison Team to compile data on the impact of the change to beacon and repeater fees is most appreciated.

ar

VM4AAA an Authentic Call Sign

The Spectrum Management Agency has advised the WIA that the call sign VM4AAA, often heard on the 14 MHz band, is an authentic call sign, held by a Queensland amateur.

The SMA said that the call sign was awarded to the holder in 1983 by the then Minister for Communications, the Hon. Michael Duffy, "in recognition of extended participation in the Amateur Service."

A proposal at the time to award VM prefixes to amateurs who had been licensed for 50 years or more was not implemented.

Call sign VM4AAA "remains allocated as a special case," the SMA said, and they "will not consider the issue of any further call signs that do not conform to the current amateur call sign template."

WIA Takes Action on Beacon and Repeater Fees

Following November's change in the method and rate of charging for amateur beacon and repeater licences, resulting in massive increases in the annual licence costs on top of previous increases, the WIA's SMA Liaison Team swung into action, calling for information from all Divisions on beacon and repeater licences in each State and Territory.

While awaiting the information, after consultation with a number of Federal Councillors, the SMA Liaison Team wrote a letter to the SMA requesting

information on the basis behind the Agency's determination of the fees.

The SMA's Radiocommunications Assignment and Licensing Instructions (RALI) AM2 says that "A separate licence is required for each Amateur Repeater station. Such licences only authorise the operation of one pair of frequencies (transmit/receive) except..." and "A separate licence is required for each Amateur beacon station. Each Amateur Beacon licence must only authorise one transmit frequency."

Although the WIA has had

QSP News

Nominations for Election of Federal WIA Officebearers

Amateur Radio magazine received a request dated 24 January 1997 from Neil Penfold VK6NE, Federal President of the WIA, asking that the following notice be published:

To All Members of the Seven Divisions of the Wireless Institute of Australia

At the Annual General Meeting of the Wireless Institute of Australia to be held on 3 and 4 May 1997, in accordance with the Articles of Association, the positions of President, Directors, Editor and those of the numerous Federal Coordinators all come up for election.

Your consideration of the various positions is sought and, should you wish to nominate a person, please communicate with your Federal Councillor.

■ Equipment Review

Yaesu FT-2500M 2 m 50 W Mobile Transceiver

*Reviewed by Ron Fisher VK3OM**



Front view of the FT-2500M with the matching MH-26G8J electret microphone.

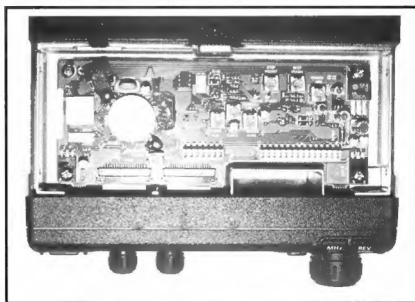
A few years ago I reviewed the predecessor of this transceiver, the FT-2400. This, and the new FT-2500, were designed to meet United States Military Specifications for shock and vibration. The construction is rugged with a one piece die-cast chassis. Maximum transmitter power output is fifty watts with selectable lower power of twenty five and five watts.

Frequency coverage on transmit is 144 to 148 MHz with extended receiver coverage from 140 to 174 MHz. There is no coverage of the AM aircraft band although other Yaesu models of a similar type do include this facility.

The FT-2500M measures 160 mm wide by 50 mm high and 180 mm deep. It weighs in at 1.5 kg which is a shade heavier than some of its contemporaries which, of course, reflects its more rugged construction. The transceiver is supplied with a solid mobile mounting bracket and a generous length of DC connecting cable.

The FT-2500M is designed for simplified operation with a minimum of

controls on the front panel. In fact, five of the controls are hidden behind a drop-down panel which makes for a very clean front panel appearance.



Top inside view of the FT-2500M. Note the pre-set controls for low/mid/high power setting (centre) and the beep level to the upper right.

Compared to the earlier FT-2400, the entire front panel has been improved with the tuning control moved higher and increased slightly in size. Unfortunately, though, the modular microphone connector remains which makes it difficult to connect a packet modem. An adaptor lead is available as an option to simplify packet operation. Talking of packet, the FT-2500M is capable of operating with 9600 baud packet but a fairly complicated modification is required. While this is fully described in the excellent manual it would need a fair degree of expertise to carry out. Dick Smith Electronics can undertake the work at minimal cost if requested. Of course, 1200 baud packet operation is available without any modifications.

Features of the FT-2500M include 31 tunable memory channels (isn't it interesting that the tiny FT-10R has over three times this capability), manual or automatic LCD illumination control, and the ability to name any of the memory channels. A CTCSS encoder is included but the decoder is an optional extra.

Originally the FT-2500M was to be supplied with the MH-27 DTMF type microphone but is now supplied with the MH-26G8J. It is this microphone which is pictured with the review transceiver.

The small button on the front of the microphone allows switching between VFO and memory operation, which is very handy. The original microphone also had a priority channel select button which is no longer available. Dick Smith Electronics informed me that the new microphone should have better audio quality compared to the earlier model.

FT-2500M On Air

Entering memories in modern transceivers can be an interesting exercise. Buttons held down for slightly different periods of time produce different results. It takes a little time to get used to the system. However, the instruction book is well written and therefore easy to follow.

On-air tests indicated that the new microphone sounded much the same as the earlier one. The transmitted quality sounded rather "spitty" with apparent over-deviation at the high frequency end of the audio spectrum due to a peaky microphone response.

FT-2500M On Test

The first test was to measure the

transmitter output, firstly at 13.8 volts and then at lower voltages to simulate a discharged car battery, and to check at what voltage the set stops transmitting. It is important to know these figures if you are out on an emergency exercise. To answer the last question first, the FT-2500M will continue to put out reasonable power right down to 9 volts. In fact, the output at that voltage is 17 watts.

At 13.8 volts the power output was right on the specified 50 watts and the current drain was 9.5 amps. Mid-power output, specified as 25 watts, was measured at 23 watts with the current drain at 6.5 amps. Low power measured 4.3 watts with 3.2 amps drain.

One of the important parameters with a mobile transceiver is the maximum undistorted receiver audio output. The specification rates this at 3.5 watts at 10% distortion with a four ohm load. My measurements confirmed this figure which was obtained with the volume control full on and with a full saturation signal into the receiver. The internal speaker is mounted in the bottom of the

cabinet which is probably the best compromise for the usual mobile installation. The internal speaker gives reasonable audio quality but, as usual, a good external unit is to be preferred for both mobile and home station use.

Receiver sensitivity is specified at 0.2 μ V for 12 dB SINAD and again this was confirmed by my measurements. Squelch sensitivity was measured at less than 0.1 μ V. Overall, the performance of the FT-2500M is first class with the possible exception of transmitted audio quality.

FT-2500M - the Bottom line

At a selling price of \$599, this transceiver represents excellent value, particularly if you need a transceiver that can stand up to a hard life and comes with a two year warranty. If you treat your equipment in a more gentle way you should be rewarded with a lengthy trouble-free life. Thanks to Dick Smith Electronics for the loan of our review transceiver; you should contact them for any further details.

**24 Sugarloaf Road, Beaconsfield Upper VIC 3808*

■ The Federal Budget

Peter Naish VK2BPN, the WIA Federal Secretary, explains the financing of the Federal WIA.*

No, you are not about to read a complicated political statement from Canberra regarding how your tax dollar is to be spent! Rather this is an attempt to explain how your WIA Membership Subscription is used to provide you with meaningful benefits.

From time to time there have been descriptions of how WIA Federal is structured. But there has not been a simple account of how it is financed and what it does with the money received. Suffice to say that WIA Federal is operated as a business and obeys the rules laid down by the Australian Securities Commission as they apply to incorporated not-for-profit companies.

The Federal Executive of WIA Federal comprises the Company Directors charged with the responsibility of operating the business enterprise on

behalf of the seven shareholders (the seven State Divisions of the WIA). The key role is accounting for the company's finances and the main tools used are the annual Federal Budget and monthly reports on income and expenditure. The objective of this article is to highlight to you the various areas from which income is derived and how it is then employed to the benefit of Australian radio amateurs.

The principal income comes from the Federal component of members' subscriptions. Other sources are advertising in "AR", payments for sitting licence examinations, sales of the "Call-Book" and interest received from our capital assets deposited in various bank accounts.

The expenditure is much more diverse. The major cost is in the provision of our house journal *Amateur Radio*. Other

areas are the costs of providing the examination service, the collection of subscriptions on behalf of the State Divisions, liaison with the SMA and overseas organisations, and the provision of funding to various activities which include AMSAT, ARDF, amateur radio contests and prizes for *Amateur Radio* articles. In addition there is a cost associated with running the company and providing support for the Federal Council who determine WIA Policy.

One of the major concerns at present is the fall in overall WIA membership. This is having a dramatic impact on the money available for Federal activities. At the same time there has been a drop in advertising revenue and a lower return on our investments due to lower interest rates. These factors have combined to produce a situation where the company

directors will be forced to instigate cost reduction procedures to prevent a rapid reduction in our capital assets and eventual insolvency.

To understand better the expenditure side of the Federal Budget a few words on the various activities and cost control measures are appropriate:

Amateur Radio Magazine

This seeks to be a high quality publication relevant to the needs of members and reflecting the changing technology of amateur radio. It must remain as such. However, that does not imply that it cannot be produced at a more economical cost. We are fortunate in having both a professional editor and highly talented support team who are able to publish month after month a world-respected journal. Recently we have rationalised our production activities for "AR" and now have a single contractor who is responsible for the type-setting, layout, printing and mailing of the magazine. This change is expected to save money compared with our previous arrangement where several people were involved.

Examinations

The WIA operates the licence examination service under an arrangement with the SMA. When this was instigated, it was intended that it should be at no cost to the members, ie it would be financially self-supporting. In the early days it returned a surplus to the WIA, but costs have gradually risen and ways are being sought to trim them.

Liaison

The chief reason for a federated body is the ability for a single united voice to be heard by the licensing and regulatory authorities. Specifically, in Australia the WIA speaks on behalf of all Australian radio amateurs at regular meetings with the SMA in Canberra. Overseas, the WIA is a member of IARU and participates in its regional conferences. The WIA also attends, as part of the

Australian delegation, the various WRCs that have a bearing on amateur frequencies and conditions of licence. Attendance at these conferences and meetings in general tends to be an expensive item. The period 1997 to 2000 is an important era for amateur radio. During these years there will be two WRCs, one in 1997 and the other in 1999. At both, amateur radio issues will be on the agenda including frequency allocations in the HF spectrum and the very sensitive matter of the need to demonstrate Morse code capability for those who wish to operate below 30 MHz. It is vital that the WIA be present with well-prepared material presented by experienced representatives who can ensure that the wishes of Australian radio amateurs are properly heard. Sufficient money has to be budgeted for this.

The Federal Secretariat

Day to day operation of the Federal company takes place at the Federal Office in Caulfield, Victoria. There we

have a staff who are highly dedicated to the WIA and who ensure that the company operates smoothly. Every opportunity is being taken to minimise the cost of the Secretariat by avoiding unnecessary expenditure. For this, the Directors have the full co-operation of the staff.

For several years, the WIA Federal company has been in the happy position of being able to report an operating surplus at the end of each year. Unfortunately, as a consequence of falling membership the results in recent years have not been so good. In fact a loss was reported for 1995 and a similar situation is likely to occur when the 1996 results are finalised. This situation must not be allowed to continue and the Federal Directors together with the Federal Council are determined to redress the balance. More members would certainly be the best solution but a cost restraint program is also required and appears to be possible.

1997 Membership Subscriptions

	VK1 \$	VK2 \$	VK3 \$	VK4 \$	VK5 \$	VK6 \$	VK7 \$
'F' GRADE							
Divisional	23.25	18.00	26.25	28.75	26.25	13.25	25.25
Federal	18.85	18.85	18.85	15.35	18.85	18.85	18.85
Amateur Radio	27.00	27.00	27.00	27.00	27.00	27.00	27.00
IARU Dues	0.90	0.90	0.90	0.90	0.90	0.90	0.90
International	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Total	72.00	66.75	75.00	74.00	75.00	62.00	74.00
'G' GRADE							
Divisional	19.60	17.00	22.60	25.10	22.60	11.60	21.60
Federal	15.30	15.30	15.30	11.80	15.30	15.30	15.30
Amateur Radio	20.60	20.60	20.60	20.60	20.60	20.60	20.60
IARU Dues	0.90	0.90	0.90	0.90	0.90	0.90	0.90
International	1.60	1.60	1.60	1.60	1.60	1.60	1.60
Total	58.00	55.40	61.00	60.00	61.00	50.00	60.00
'X' GRADE							
Divisional	23.25	18.00	26.25	28.75	26.25	13.25	25.25
Federal	17.85	17.85	17.85	14.35	17.85	17.85	17.85
Amateur Radio							
IARU Dues	0.90	0.90	0.90	0.90	0.90	0.90	0.90
International	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Total	44.00	38.75	47.00	46.00	47.00	34.00	46.00

**Have you advised
the SMA of your
new address?**

Division Components

Year	VK1	VK2	VK3	VK4	VK5	VK6	VK7
	\$	\$	\$	\$	\$	\$	\$
97	23.25	18.00	28.25	28.75	26.25	13.25	25.25
96	23.25	20.00	25.25	25.25	25.25	14.00	22.25
95	23.25	20.00	25.25	25.25	25.25	14.00	22.25
94	18.25	20.25	20.25	18.25	18.25	9.00	17.25
93	18.25	15.00	20.25	18.25	18.25	9.00	15.25
92	18.25	15.00	20.15	18.25	18.25	9.00	15.25
91	15.75	15.00	19.00	17.50	17.50	9.00	15.00
90	16.00	10.00	16.00	16.00	16.00	7.00	13.00
89	11.00	8.50	17.00	12.00	11.00	9.00	9.00

Federal Components

Year	AR	Intern'l	IARU	Office	Total
	\$	\$	\$	\$	\$
97	27.00	2.00	0.90	18.85	48.75**
96	27.00	2.00	0.75	17.00	46.75
95	27.00	2.00	0.75	17.00	46.75
94	32.00	2.00	0.75	17.00	51.75
93	31.00	2.00	0.75	17.00	50.75
92	31.00	2.00	0.75	17.00	50.75
91	31.00	2.00	0.75	16.25	50.00
90	30.00	2.00	0.75	16.25	49.00
89	19.14		0.75	13.11	33.00
88	16.25		0.75	13.00	30.00
87	14.20		0.75	12.33	27.00
86	11.76		0.47	12.27	24.00
85	11.76		0.47	12.27	24.50
84	12.05		0.45	10.50	23.00

**VK4 pay \$45.25 Federal component

*C/o PO Box 2175, Caulfield Junction VIC 3161

Olympics of Amateur Radio

My story begins in late 1995 when I received a letter from Martin VK5GN asking if I would be interested in participating in the WRTC-96 with him. In previous years Martin had won quite a few SSB contests – my forte had been CW contests, telegraphy being my preference for communications.

WRTC? I had read something about this back in 1990 so it was a review of old ARs, QSTs, RadComs and CQ magazines to learn the background. The 1990 event had been held in Seattle, Washington State. Twenty teams had competed during the IARU contest (July). For this event every contest station was given an ICOM 765 or 735 and each had similar antennas with similar locations to make it a level playing field. It was a great success, supported by major world electronic companies as well as other industries. Even the Governor of the State showed extreme interest and attended the final presentation.

San Francisco

WRTC-96 was planned to be the event of all events and it lived up to its predictions. The host organisation was the Northern California Contest Club and the venue set for the San Francisco bay area (better known as Silicon Valley). As a point of interest, in this quite small area there are said to be over 6,000 licensed amateurs. The date was again during the IARU Contest in July, only this time it was planned as an 18 hour marathon with the FCC issuing special 1x1 calls for the occasion.

The selection of the teams was not necessarily by the country of origin because, as in Australia, we do not have a Contest Club as such. In most cases the selection of the teams was by the International WRTC Committee who, over the previous years, had noted world and national winners. To be invited to represent Australia in this prestige event was really an honour and I rate it as the highest recognition of my 50 years as a Radio Amateur.

I thought there would be a lot of time between January and July to prepare myself for this test, but time just seemed to fly by. The Internet became the main method of communication during this

Operating World Radiosport Team Championship 1996

David Pilley VK2AYD recounts his experiences in one of the biggest contests ever.*

Over the past few months many amateurs have asked "What was the WRTC-96 and what was it like to participate in?" This is my story.

The WRTC-96 was perhaps the biggest contest event in the history of amateur radio. It brought together many

of the best contest operators in the world. 52 two-man teams from over 30 countries were put head-to-head to compete for the title of Champion of Champions. Over 250 people from as many countries were also involved in the organisation. It could be said to be the

time and a reflector had been set up in Japan so that news up-dates could be given and received just about instantaneously.

I was advised that the meeting point was to be Motel 6 at Belmont, just south of San Francisco airport. Accommodation for the five days would be provided by the sponsors free, but we had to find our own air fare, transportation, etc. One of the rules was that we had to provide our own equipment, which had to be to a specific standard, eg 100 watts maximum, no special DSP filters, etc. The antennas (a triband beam at 15 metres and a 40 metre dipole would be provided).

We were also encouraged to bring our own computers for logging and our favourite keyers. Voice keyers were not allowed. So I set about writing to the various Australian suppliers to see if they would like to loan us equipment. No interest. Some did not even have the politeness to respond. To test the waters I even wrote to the Olympic committee and the Minister of Sports and

Recreation to see if they would like to provide something that we could use to identify ourselves as Australia. They did at least respond but were unable to assist. But what the heck, we were going in any case! How could we miss this great moment in amateur radio?

Martin and I had never met so we decided to get together in May for the CQ WW WPX Contest at his home just north of Adelaide. At least we would determine our compatibility! I flew over to Adelaide and soon realised why he did so well in the contest with his antenna farm. We had quite a few other things in common, so we got on well. I am not aware of the results of this contest at the time of writing.

As the day drew closer, we gathered together the bits and pieces needed. Keyers, phones, etc. I had starting running a daily sked with FOC friends in the Bay area and already we had the promise of the use of a new Ten-Tec Omni VI and an FT-1000, so we were OK for rigs. Martin had organised a lap-top and we were ready to go.

About a month before departure day I received a request that I attend the Microwave Convention at San Francisco, three weeks before the WRTC. That certainly was very convenient and it gave me time to meet a few friends before arriving in Belmont.

I arrived at Motel 6 on Tuesday afternoon, complete with a new Omni VI and the FT-1000. The rules were that we could have two rigs. One nominated as the main rig and the other for listening and stand-by should the other fail. The foyer of the motel was like the United Nations. Italian, French, Russian, every language seemed to be spoken. The motel was quite large, and was in the shape of a triangle with a big pool in the centre. This became the meeting and partying centre for the rest of the week.

Next morning, Wednesday, Martin arrived complete with a good Aussie head-cold and all the bits and pieces needed for the contest. Over the past few months the WRTC Committee, under the guidance of Bruce AA6KX and Bob W6RJ, had seconded 52 existing stations

PRESS RELEASE

MINI-CIRCUITS DESIGNER'S GUIDE

To encourage Radio Amateurs to build and develop their own communications equipment, Mini-Circuits USA are offering, free of charge, their RF/IF Designer's Guide.

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in the Bay area to be the host stations for us to compete from. Which station we would be operating from would not be determined until the Friday prior to the contest.

Registration

That morning we all met for registration. Lots and lots of hand-shaking with amateurs we had often competed with and now met in person. Each person was given a special WRTC-96 embossed Tee-shirt. Competitors were White, Judges and Committee were Blue, Referees were Red. Everyone could easily be recognised as to their involvement. Yes, for 52 stations they needed 52 referees (to keep us honest).

In the afternoon we were all taken to Coyote Point Park where Icom had organised an excellent picnic. The evening was a "pool" event! For those that did not hold a US call, special dispensation was given by the FCC and those that wanted to sit the US exams were given the opportunity. All the Russians turned into AC6s! I already had a US call, N3AFU, so no problems.

Thursday we were given the option of a tour of San Francisco, organised by *CQ Magazine* and Cushman, or a tour of Silicon Valley organised by ARRL/TGV. Martin and I chose the latter which took us on a tour of Force 12, the antenna manufacturer, to HRO (Ham Radio Outlet) and Fry's computer superstore where quite a few dollars exchanged hands. Martin also acquired a set of band-pass filters which were more than useful during the contest to aid listening on the second receiver. In the afternoon we were transported in three buses to a dinner sponsored by Shell Oil at historic Martinez. It was about an hour's drive north which was an interesting peak-hour experience. Martin's head cold was beginning to peak and I had signs of it coming on.....!

Friday and you could feel the tension. At 10 am the competitors, judges and referees all met for the final briefing by K3EST, N6AA and K4VX, and to learn who our host station would be. As Australia is near the top of the alphabetical list we had an early draw. We drew the station of Fred Streib W6NA at Palo Alto and our referee was RU1AA. An envelope giving our 1x1

call was given to RU1AA. This would be opened an hour before our start.

Back to our room to pack and check over our equipment. Had we missed anything? Too bad now. As Martin and I had no transport, Bruce AA6KX kindly offered to ferry us to our operating QTH which was set in a lovely residential part of Palo Alto.

Fred and his wife Rosemary were wonderful hosts and really made us feel at home. We were surprised to find Fred already had two full Ten-Tec stations installed and it seemed such a shame to have to remove his Omni VI and replace it with ours, but those were the rules. Above the house at 13 metres was a HB9CV triband beam, and a 40 metre dipole had been installed by W6RGG. The FT-1000 was set aside for just listening.

A VCR was installed to record all events and a dual phone outlet was provided so that the referee could monitor the operator. I had the good fortune to spend a week with WJ60 prior to the event so was already quite familiar with the Omni VI. This transceiver is dedicated to amateur radio and only covers amateur bands. It is possibly the easiest radio I have had to operate. The features were built-in, whereas with the

FT-1000 you had to fiddle knobs to optimise it.

That evening we were well fed and ready for the 5 am start the next morning. As Martin was more familiar with the "TR" logging program (I use "CT" at home), we decided to adopt this. I got some practice with the program before making an early night.

Saturday, 4 am (yes, there is such a time!) we woke, showered and prepared for the big moment. The call would be W6Z. The WRTC contest was to be part of the IARU CW/SSB contest which starts at 5 am local time. We would enter the IARU contest at 5 am and leave it at 11 pm. To provide incentives to work WRTC stations, the committee had arranged various trophies and most of the Silicon Valley gang were eager to see who would be the first to qualify. Here was a contest within a contest within a contest!

Nice Clear Spot?

As HF (14 MHz up) was still pretty dead at this time of day, we decided to open up on 7 MHz with CW. 80 metres was not going to be used by the WRTC for the marathon. I listened around the band. Lots of signals tuning, some in QSO. I found a nice clear spot and



From l to r, VK2AYD, W6NA, VK5GN, RU1AA.

decided that would be it. Lock onto a frequency and save the S & P (search and pounce) for later. We set our computer clock and waited. 5 am and I pressed the auto CQ button so did half of Silicon Valley! They all seemed to be on the same frequency that was once clear and now reading 20 dB over S9 and totally unintelligible.

I quickly searched for another frequency, found one, and started to run stations, but kept coming unstuck with the TR program, hitting the wrong keys. Finger trouble at this time was not good and I was getting mad with myself. It took me over half an hour to really settle in and I think a lot of it was nerves, knowing I had to be up in the 100 QSOs/hr to be competitive.

I quickened the pace and exchanges to get over this magic number. After a couple of hours I was ready to pass the baton to Martin and let him raise the level on SSB when suddenly the TV cameras and reporters arrived. I quickly vacated the hot seat and Martin took over. For those of you that know Martin you can imagine his profile with the hands free mic and headset on. The camera man thought the same and some interesting footage was made which we were able to view on closed circuit at the presentation banquet.

Martin soon had the rate up over 150 and we settled down for 18 hours of competition. RUIAA, our referee, was also a keen CW operator so I couldn't make errors without notice! His command of English was not so good so when Martin was on, it was left to the recorder! We worked throughout the day in two hour shifts and when not operating we endeavoured to listen on the other receiver; however, in spite of having excellent band-pass filters fitted, it was nearly impossible. Our hosts, Fred and Rosemary, laid on a magnificent luncheon in their garden but, with all the excitement, it was not really a good time to sit and relax.

At about 9 pm that evening we were around 1800 QSO's but we had very few multipliers so we reverted to S & P for the last two hours. That probably was a bad move, but it was our decision. Some local knowledge would have been useful as I'm sure at times I had the beam in the wrong direction. But all this is thoughts after the event.

I don't remember what the break down of QSOs were per band. In those 18 hours, after deletions and corrections by the judges, we were accredited 1822 stations. At the stroke of 11 pm our station closed and our computer log was removed and transported to the judges who spent all night analysing the logs and making changes as necessary. Martin and I returned to the motel with our equipment and slept through what was left of the night.

Day of Reckoning

Sunday and the day of reckoning! Everyone was around the pool. The Slovenians were offering strange drinks and Rusty W6OAT had organised endless pizzas. Lots of talk on QRM, QRN, who stole my frequency, etc, but all in a good spirit. That evening we were all invited to a banquet at Stanford University for the prize giving.

The winners were KROY and K1TO who had 2457 QSOs to their credit. The gold medal was presented to them by the President of the ARRL, KB6ZV. It was a magnificent evening with what seemed like thousands of people there. I wished I had an Australian flag to fly as some of the other competitors were displaying theirs. It was a great moment in my life. We didn't win gold, but I did come home with gold - I went gold-panning in the Sierra mountains with WJ6O!

On Monday, Yaesu invited us all to a tour of the Napa Valley via the San Francisco ferry. The wineries at Mondavi were our first stop and then to Sattui Winery for a gourmet lunch and a long drive back by road. That evening the pool area was once again full of DX and lots of grog!

So ended WRTC 96. Where will it be held next? They suggested Australia in the year 2000 to coincide with the Olympic games. My suggestion was that each team had an out-back pedal power rig, one operator to pedal and one to work

the rig! This soon changed their minds! Whoever picks up the gauntlet for the next WRTC will have a hard act to follow, and whoever represents the Australia Team I can assure will have a memory that will never erase. WRTC-96 was the first time Australia had been invited. Let's make sure it's not the last.

I would like to thank the organisers, especially those behind the scenes who provided transport on time, organised our days and ensured no one would have an unhappy moment. To WJ6O who offered the loan of his brand new Omni VI, K6TS who loaned his FT-1000 (what trust!), our host station W6NA and to W6DU who looked after me whilst I recovered from the dreaded lurgy after the event. Isn't Amateur Radio a great fraternity? I'd also like to thank friends at Charter Freightlines and Clarke Electronics, Sydney, who gave me support and encouragement to take up the challenge.

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Technical

Technical Abstracts

Gil Sones VK3AUI*

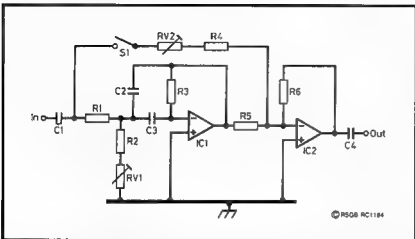


Fig 1 - CW Zero Beat Tuning Aid.

CW Zero Beat Tuning Aid

With modern transceivers the received beat note must be matched to the CW offset if the transmitted signal is to be on the same frequency as the signal being received. The sidetone is usually at the correct pitch but comparison may be difficult. In the *Eurotek* column of *RadCom* for October 1996, Erwin David presented a tuning aid originally published in the April issue of *CQDL* by Hans Cordes DJ4AZ. This aid was based on an idea from VE3EDR published in an ARRL publication.

The aid is a notch filter on the correct beat note frequency for the transceiver CW offset. The signal is tuned so as to be in the notch and then the notch filter is switched to peak the signal, or could be switched out of circuit.

The circuit of the filter aid is shown in Fig 1. With S1 closed the filtered audio and the unfiltered audio are added in the summing amp IC2. The two inputs are out of phase and cancel, and the circuit functions as a notch. Open S1 and the circuit acts as a peaking filter. If the filter were bypassed by additional switching, a wider bandwidth position could be provided as well.

The tuning range is approximately 500 to 1000 Hz which should suit most transceivers. The op amps are not critical and 741 types would be suitable. The parts list is given in Table 1. RV1 is the notch tuning and RV2 sets the notch depth.

Table 1 - Parts List

Resistors 5%

R1	68 k
R2	1k8
R3	180 k
R4, 5, 6	10 k
RV1, 2	5 k 10 turn

Capacitors

C1, 4	1 μ F non polarised
C2, 3	10 nF 5%

Op Amps

IC1, 2	741 or similar
--------	----------------

Two Metre Field Strength Meter

A field strength meter which reads linearly between one volt per metre and a full scale of five volts per metre appeared in the *Eurotek* column of *RadCom* for

November 1996. Erwin David G4LQI reported on the design of Anjo Eenhorn PA0ZR which was originally presented in *Electron* for August 1996. In the Netherlands amateurs are responsible for RFI to consumer products where a certain field strength is exceeded by the amateur transmission. This is currently one volt per metre which is to be lifted to three volts per metre. Hence the need for a field strength meter.

The design presented in Fig 2 is calibrated per definition without comparison to a standard instrument. It is intended for use in the 144 to 148 MHz band. Careful construction is needed. The dipole was made out of 6 mm diameter tubing and the components were mounted on a small insulating board. The dipole and the component board were then fitted with a wooden handle at right angles to the dipole.

The diode is a Schottky type with a voltage drop of 0.4 volt which will allow a reasonably linear scale from 1 to 5 V/m. The meter is 100 microamps full scale and the required multiplier is 60 kilohms which is split into two resistors of 30 kilohms. The resistors may have to be made up to value and allowance made for the meter resistance.

At one volt per metre the voltage delivered by the unterminated folded dipole is 1.3 volts. With a Schottky diode this will give a reasonably linear scale from one volt per metre to a full scale of five volts per metre. The calibration can be at DC for the meter.

This can be a useful field strength meter to provide a quick check, and an

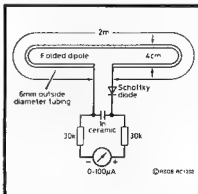


Fig 2 - 145 MHz Field Strength Meter.

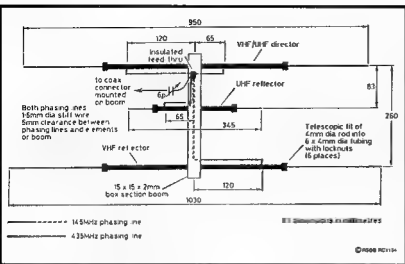


Fig 3 - Dual band HB9CV Beam.

important instrument when faced with an RFI immunity level problem.

Dual Band HB9CV Beam

The HB9CV antenna is a variant derived from the ZL Special which is popular in Europe and elsewhere. It is used in some ARDF foxhunt equipment.

A dual band model for two metres and 70 centimetres appeared in the *Eurotek* column of Erwin David G4LQI in *RadCom* for September 1996. The design was originally published by

Walter Gloger DL3AC in *CQ-DL* November 1995. A Dutch company, EPS Antennas of PA3EPS, has a commercial model available.

The two feed systems are connected together to give a common feed. The director functions on both bands, and separate reflectors and phasing lines are used. The aerial is shown in Fig 3. The gain claimed is modest but it is a very compact dual band beam.

*C/o PO Box 2175, Caulfield Junction VIC 3161

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WIA News

Big Things Planned for NZ Conference

The New Zealand Association of Radio Transmitters (NZART), the WIA's counterpart in that country, is holding its annual Conference, imaginatively dubbed "Conference '97", in Hamilton on the North Island over the weekend of 30 May to 2 June. This is the Queen's Birthday holiday weekend in New Zealand.

Apart from the NZART's annual general meeting, there will be show-and-tell sessions on Amateur Radio Direction Finding (ARDF), amateur satellites, data modes, homebrew radio, slow scan television, and more.

A special event station, ZL6HAM, will be on the air during the conference.

A delegation of two people from the WIA Federal Council, including Federal President Neil Penfold VK6NE, will attend the NZART Conference this year. Each society sends a delegation to the other's annual general meeting in alternate years.

World Amateur Numbers Climb

The International Amateur Radio Union (IARU) reports that there are presently nearly three million licensed amateur stations world-wide and that the rate is increasing annually at 7%.

The IARU estimates that, at this rate, there will be some four million amateur stations by the end of the 20th century.

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[AR 1-11/97]

Humanitarian Award for Two Amateurs

A British and an American amateur have been jointly awarded the American Radio Relay League's International Humanitarian Award for 1996. They are Ken Kirk-Bayley G3OKKB and Robert C Smithwick W6JZU, the co-founders of MediShare International.

The ARRL Letter Online for 24 January 1997 said that the Award is given to Amateur Radio operators who have used their skills to benefit others and have worked to promote international goodwill.

MediShare International provides medical supplies, instruments, equipment, and trained health professional volunteers to work in clinics and hospitals in Third-World countries. Smithwick's outstanding achievement began in 1989 when he overheard a ham in Rwanda tell another on the Island of Jersey that his small local hospital needed a part to fix the only steriliser in its operating room. Smithwick, a retired dentist, broke in on the QSO and said he could help by using his connections with another service-oriented organisation, the Medical Amateur Radio Council (MARCO), founded in 1965, the ARRL Letter reported.

"Thanks to the quick efforts of Smithwick, the Jersey radio amateur (Kirk-Bayley), and another from the US who volunteered to make the steriliser part, the Rwandan hospital got what it needed and MediShare International was born. It's now a MARCO program.

"Over the years, MediShare International has accepted hundreds of thousands of dollars worth of medical-dental equipment, and medical supplies, which in turn was repaired, refurbished as required, converted for use in the country of destination, and shipped to hospitals and clinics in Third World countries. MediShare paid much of the costs of repair and transportation from donations of MARCO members.

"Among other projects, organisation volunteers are now working to staff a new surgery; obstetric and paediatric wing at a Kenya hospital. Soon, MediShare International hopes to begin bringing people to the US to teach them medical-equipment repair skills they can use in their own countries. Smithwick lives in Los Altos Hills, California. He's been a ham for more than 50 years."

CD-ROM Review

QST, NCJ and QEX on CD-ROM

Publisher: The American Radio League, Inc.

Reviewed by: Evan Jarman VK3ANI

Personal computer systems are now used in the production of most magazines - *Amateur Radio* is no exception. Apart from the ease of production, having magazine material stored on computer makes it very easy to search or manipulate the information by getting the computer to do most of the hard or mundane work involved.

The ARRL have now released all their magazines published in 1995 in a computer literate form, the CD-ROM. The text for every article is included as are the pictures and the diagrams. Software files referred to in articles are included. Even the advertisements are there, indexed on vendor and product too.

All articles are indexed to allow for logical searching using title, author, call sign, etc but, when looking for something unique, this system excels.

The searching facilities included on the CD-ROM are equal to any, with displays of the number of times each publication has the desired "key". Once found the item can be accessed at the click of a mouse. The search "key" can be a few letters to a block of text. Bookmarks can be inserted for those items frequently wanted for a variety of subjects. Everything can be done via mouse or keyboard from the Windows desktop.

I have held on to the disk for a few months to road test the system as required. Whenever there was a need to



check for previously published material, it could be found within seconds. Invariably the software found what I was looking for embedded in the most unlikely spot, places you never dream of looking. It certainly beats searching through 36 magazines.

As a medium for storing magazines this is ideal. The entire year's output for the three magazines on one disk with space to spare and it's cheaper than subscribing to one. The items most wanted can be printed for those who need a paper copy to work from.

The disk is complete. It comes with all the driving software but needs Windows 3.1 or later as the operating system. This CD-ROM requires an IBM/PC personal computer with at least 4 Mbyte of RAM, CD-ROM drive (double speed or better), VGA display and 10 Mbyte of spare hard disk space running Windows 3.1 or better. It prefers a 486 with 8 Mbytes and 800 by 600, 256 colour graphics.

A Case for Using Morse Code for Emergency Services

Kris Gerhardt VK4CPG has put together some interesting thoughts in favour of Morse code "when all else fails".*

Introduction

When comparing digital communication modes from CW to Clover-II the main disadvantage mentioned for CW is that the typical data transfer speed on HF is very low (max 50 bd = 60 wpm), whereas Clover-II runs up to 750 bd. The other disadvantage is that it has no error correction and thus has a poor noise and interference tolerance (ref 1). The latter may be true for computerised digital decoding techniques, but is grossly underrated in situations with human "decoders". CW has proven its worth in many cases such as the first intercontinental radio contacts, emergency situations, moon bounce and meteor scatter communication where other methods would have failed. It is therefore worth a second look before it lands in the dust bin.

General Principles of Digital Techniques

Basically, digitising of information (data, speech, music, etc) is nothing more than creating and detecting the presence or absence of some discernible physical condition such as light, magnetism, current or voltage. In other cases, two conditions such as certain voltage or frequency ranges are defined as "high" or "low" (or 1 and 0) and exist next to undefined conditions. Although these high/low/nothing conditions are actually three levels, only two are normally used. After a starting signal the information is sampled to see whether at a certain time the level is "low" or "high". This can be in blocks of five (Baudot) or seven (ASCII) time units, with or without additional error correction bits. These systems need a fixed "clock-speed" because all sampling must be synchronised.

Morse Code is Different

Samuel Morse based his telegraphy code on character distribution. The most frequent letters occurring in English text were given the simplest code, starting with the letter E. This makes Morse code more efficient than ASCII and Baudot, where every character is equally long. Another, more important difference is that Morse code can be used in many situations, by simply switching something on or off. A Morse code character is essentially determined only by a sequence of three states (long, short, silence).

Although the duration of these events is formally defined, the character will be readable as long as a dot differs in length from a dash and the spacing between characters is roughly some silence and between words is more silence. This means that timing is not very important. This is contrary to other digital methods which use a series of highs and lows at certain times. This is important, as Morse code operators never send manually in the same way. Each operator has a typical "fist" or "signature" which may deviate considerably from "model code" and may also vary his/her sending speed during a transmission.

Because of its low speed, Morse code can use on/off switching (with some processing to avoid "key-clicks") and, having a small bandwidth, it is therefore very efficient for low S/N ratios. Generally, systems with on/off switching of a signal are more noise resistant than systems with two signals that differ in some characteristic. Differences in frequency (FSK) are more difficult to detect but are easier to process at high speeds.

Morse code based on frequency shift keying, as done in other digital modes,

has never given the same results, unless the space frequency is tuned zero beat (no audible tone) In that case the bandwidth is, however, much greater than the typical <200 Hz for shaped on/off Morse signals and the duty cycle for the transmitter is 100%.

Morse Code is Not for Machines

Machines to decode Morse require well-defined differences in duration between dots and dashes, characters and words. That timing is often not precise. As Morse code has no built-in error correction, noise received within a time frame is considered as a signal and decoded. Even with sharp filters, noise blocking and signal processing, CW is unreliable when received by machines in the presence of noise. The conclusion is that CW computers can only be used to receive CW up to, say, 50 wpm in cases where the sender uses timed electronic or mechanical keys at a fixed speed in a relatively noise-free path. They are, of course, ideal senders of code.

The Importance of the Human Factor

Humans cannot decode ASCII, Baudot or any of the packet modes. On the other hand, a tone between 600 and 1200 Hz can be recognised by the human ear and brain in an incredibly noisy environment. A signal to noise ratio of 0 dB is totally adequate to decode Morse signals. Even near deaf people can still communicate through Morse. Also, people in countries with different languages can communicate effectively in Morse, as pronunciation of words is not relevant.

Although it is not encouraged that telegraphists "journalise", everyone knows that plain text is easier to understand than unrelated characters. The human brain processes signals by taking its history and logic also in consideration and needs only partial information to make an intelligent guess about a word or a sentence. This means that the error correction in Morse code is performed by the human brain. Only in cases where random characters are transmitted, words may have to be sent twice as a method of "forward error correction". Together with break-in

keying, this forms a practically error free transmission mode.

The other advantage of receiving Morse "language" by human operators is the insensitivity to the strength, timing and character of the signal. Highly irregular code can still be received with reasonable accuracy. Also, receiving Morse code in a mixture of other signals, Morse or not, remains possible. Here again it is shown that the human hearing is a superior device. Not only is it difficult to overload, but it can also identify small differences in regularities and frequencies in an environment of many other signals. A trained operator can pick up a weak signal sent by a miserable operator out of three or four others, while still reading another at the same time. This is hardly possible with any other mode.

The conclusion is that Morse code, when interpreted by a human operator, is far superior to other digital techniques in situations of simple equipment, low signal-to-noise ratios and the transmission of plain language or well-codified messages. It compares in that respect with listening to several people talking at the same time. As long as the conversation is not too difficult, the built-in redundancy in the language makes it possible to understand several people. The same is possible with Morse code.

Emergency Situations

In emergencies we are interested in an all-purpose communication code that is still useable when mobile telephone and radio transmitter towers may have fallen over, optical fibre cables are broken, telephoned exchanges gone, radio stations flooded and no power is available other than 12 V from car batteries. We only

need to see the photos of areas visited by earthquakes or cyclones to get an impression of the chaos that exists in these situations.

It is unlikely that computers and complicated gear will survive in these circumstances. On the contrary, an elementary on/off signal source (even a smoke signal) is always available or can be improvised for communication in practically all cases. Ultimately, we can talk to all living beings as soon as we know that they are sensitive to some condition that can be changed fairly rapidly. To give some examples: changing between two acidity levels (pH), light (frequency or level), sound (levels or frequency), pressure, speed, etc all can convey messages in Morse.

Radio amateurs, throughout the years, have been involved in disaster communication, experiments with unusual wireless channels and social activities (which might include exchanges with aliens). It is therefore logical that they should be proficient at the base level in Morse code, the simplest, most efficient and versatile digital communication technique for emergency situations.

Not many other people are now being trained in Morse code. Ship's telegraphists and some military personnel are about the only ones who handle Morse code signals professionally and can take front line responsibility for communication when all other means fail.

So, amateurs trained in Morse code will be required. Their assistance would also involve the use of simple, robust receivers and transmitters, that work with improvised antennas, are powered

exclusively by batteries and can easily be repaired by the operator in case of damage. Preferably these should be crystal controlled, operating on a specific emergency channel provided for in the Band Plans.

Plan for the Future

It is unnecessary to insist on two-way CW for amateur emergency communication. It is far more logical to use any mode that is the most appropriate in the given situation. Even in very bad emergencies there are still places to be found where base stations with a very strong transmitter can be set up to receive CW messages from the disaster area and send information back in voice. Communication with Morse code one way and voice the other way can be maintained for a long time and would be useful, if two-way voice or digital communication is not possible.

In that case it is not necessary for everyone to be able to read 20 wpm CW, but it would help when many could send at that speed. The WIA could plead for the inclusion of protected emergency channels in the band plans and organise QRP-CW/fixed-SSB field day contests. The (really) portable stations would be required to send CW but receive SSB or FM from fixed stations to simulate emergency situations. All amateurs capable of sending Morse code, but who cannot receive it, can thus participate in these activities.

Another way of stimulation is to include technical topics for QRP CW stations in our magazine, although there is a special QRP-CW club. A third way is to extend the pool of potential CW operators by organising local CW courses in tone-modulated AM on the Citizens Band. Not only will this bridge the psychological gap between CBers and "regular HAMS" but it will also help a number of people to get a cheap radio to receive CW and learn the code in the comfort of their own place. It sounds revolutionary but is in fact only a community service within the allowed CB radio service.

Reference

1. *The ARRL Handbook for Radio Amateurs 1995 Chapter 12*

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WIA News

Record Membership for ARRL

The American Radio Relay League (ARRL) reported record membership numbers for 1996, with a grand total of 175,023 at the end of the year. This was up 2.1% on 1995 membership numbers, according to the *ARRL Letter Online* for 10 January 1997.

The 175,000-plus membership is the highest in the League's 83-year history. Licensed amateurs in the USA number more than 650,000.

The 1995 League membership showed a decline of 0.6% compared with 1994 numbers. The ARRL conducted membership drives in 1996. A mailed promotion in November 1996 netted 1461 more members.

ARRL executive vice president David Sumner K1ZZ said the record membership numbers were, "not bad for the worst business year for Amateur Radio in recent memory."

III

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■ Book Review

Practical Receivers for Beginners

Publisher: Radio Society of Great Britain

Author: John Case GW4HWR

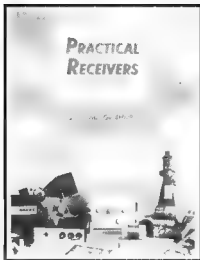
Reviewed by: Evan Jarman VK3ANI

While most amateurs favour equipment with "bells and whistles", there is a unique satisfaction in operating even simple homebrew.

The RSGB recently published this book which is a companion for "Practical Transmitters for Novices" by the same author.

It describes some of the author's designs for receivers that cover bands from broadcast to microwave. Most of the designs are extremely simple. The 10 GHz receiver that uses a LM386 and a diode will not set world records, but it does give a feel for the "plumbing" involved.

While the majority of the designs published are a bit more than weekend work, they are not too involved. The FM receiver for 6 m, and the direct conversion receiver for 80 and 20 m, are the most complicated designs published. The diagrams are the usually exceptional standard that Derek Cole has made synonymous with the RSGB. There is enough detail to make construction easy for most. Nearly all the construction is based on a PCB which makes building very easy. An appendix that gives PCB construction details makes you wonder why the demise of homebrew seems to parallel the rise of the PCB.



The book does also provide a little of the theory of radio as a help to the equipment design.

Most of the equipment described in this book does not operate on Australian Novice bands. This will limit its appeal to those who are primarily tinkers.

The review copy came direct from the RSGB, publishers of the book. Copies should be obtainable from the usual suppliers of RSGB publications. **ar**

WIA News

Britain Reduces Amateur Exam Fees

The British communications regulatory authority, the Radio-communications Agency, announced in late January that examination fees for candidates for the Radio Amateurs Examination would be reduced and the present two exam papers amalgamated into one, from May 1998.

Candidates presently pay 19 pounds 40 pence (around \$AUS40) per paper, about \$AUS80 all up.

The present two papers are to be amalgamated into a single paper of 80 questions next year and the cost for sitting the examination will be 26 pounds, which is more than \$AUS50.

The approval fee for British examination centres, presently a one-off fee of 250 pounds (around \$AUS500), will drop to 100 pounds (around \$AUS200).

The changes came about following representation from the Radio Society of Great Britain (RSGB).

■ Test Equipment A Simple Signal Injector

Graeme Wilson VK6BSL describes a very useful piece of test equipment which can be built in a couple of hours.*

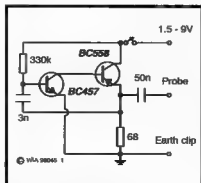


Fig 1 - Circuit diagram of the simple signal injector.

Here is a simple weekend project. This simple signal injector is based on a circuit which is a multi-vibrator rich in harmonics. Its fundamental operating frequency is about 1 kHz and, at 9 volts, the output is about 200 mV.

Any general purpose small signal NPN or PNP transistors can be used. Choose transistors which have similar gain characteristics. Looking at the output on a CRO, the trace looked like a number of needle-like pulses occurring every millisecond. The output could be detected up to around 50 MHz using the receiver on AM; levels were much lower

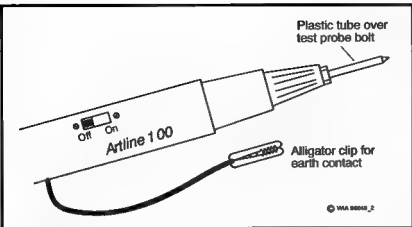


Fig 2 - The simple signal injector in a modified Artline 100 felt tip marker pen (see text).

using either sideband, and it was not detectable using FM. (*I built one to try it out, and it works. Tech Ed*)

I found that an Artline 100 felt tip marker pen made an ideal casing for the circuit board and AA battery cell. Drill a 3.2 mm hole in the plastic screw top and fit a 50 mm long 3 mm brass bolt and nut. Sharpen the end of the bolt to a point for the probe and fit a small piece of heat-shrink tubing over the probe to insulate all but the tip. Fit a small slider switch to the casing to turn the power on and off. The method of fitting and connecting the battery is left to the constructor.

To use this handy tester, it is recommended that you start at the output stage of the receiver and work towards the antenna. If the signal is heard, move the probe to the base of the transistor in the preceding stage. Continue moving forward towards the antenna until the signal cannot be heard. When this happens you have located the faulty stage. As you move towards the antenna the signal should be louder if each stage is amplifying the signal.

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test equipment. There are now many suitable test instruments available and the book shows you how to carry out measurements using instruments available from dealers and which may also be found at hamfests.

As well as standard test equipment, the book shows you how to build your own items of test equipment. These range from simple items to more complex items of equipment. The use of test equipment is also discussed in a most practical manner.

Of interest is the setting up of your own backyard antenna range using a PC to act both as a data logger and plotter. With a little ingenuity, a very useful test range can be built from simple building blocks of equipment.

There are listings for design programs for use with a PC which would be handy if you can't find them on a CD, disc or BBS, etc.

A chapter on the NEC based modelling programs is of interest. The strengths and weaknesses of these programs are discussed. Together with empirical data from the simple measurements described in the book, these modelling programs can assist in understanding and optimising antenna performance.

All in all, a very interesting and worthwhile book for the experimenter's library. The review copy came direct from the RSGB, publishers of the book. Copies should be obtainable from the usual suppliers of RSGB publications.

■ Book Review

The Antenna Experimenter's Guide (second edition)

Publisher: The Radio Society Of Great Britain

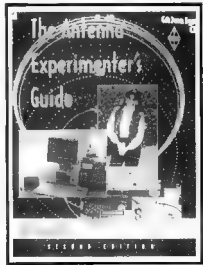
Author: Peter Dodd G3LDO

Reviewed by: Gil Sones VK3AUI

This book is for the antenna experimenter. The building, testing and optimising of antennas is covered in a very practical manner. There are, of course, some very interesting designs described, but the emphasis is on the design, testing and optimisation of

antenna designs. The book goes beyond just matching the antenna to the feedline and describes how to measure antenna performance and optimise a design.

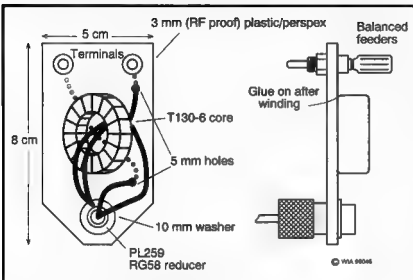
The measurement of antenna characteristics is covered using both standard test equipment and home-built



■ Antennas

Balanced Feeder Balun Adaptor

Graeme Wilson VK6BSL explains how he constructed an adaptor to enable his unbalanced ATU to work with balanced feeders.*



Construction details of the balanced feeder balun adaptor.

I needed to use my unbalanced Antenna Tuning Unit with an antenna which used balanced tuned feeders. I found that the neatest and most convenient way to do this was to construct a balanced to unbalanced adaptor which could be fitted on the back of the tuner using a PL259 connector.

The adaptor uses a 4:1 balun mounted on a perspex plate measuring 8 cm by 5 cm. The balun was made by winding 12 bifilar turns of 16 AWG wire on a T130-6 yellow core, connecting the finish of winding one to the start of winding two, and grounding this junction to the body of the PL259 connector. I then connected the start of winding one to one of the balanced inputs, connected the finish of winding two to the other balanced input terminal and, from this terminal, connected a wire to the centre pin of the PL259 connector.

I then glued the balun to the perspex plate (if you use a mounting screw it should be nylon).

Fitting this adaptor to your ATU is easy. Simply screw the PL259 to the antenna connector, then connect the twin feed line to the two terminals.

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■ Antennas

The Z Match and Its Matching Load Range—An Inherent Drop-out with Certain Capacitive Loads

Lloyd Butler VK5BR and Graham Thornton VK3IY** publish the results of their joint study on the ubiquitous Z Match*

Introduction

We draw the attention of Z match users to a drop-out region in the load range of that tuner which was not noticed in earlier tests. We explain the reason why

there is such a region and discuss some ideas on how to deal with the problem.

Background Theory

The Z match tuner can be resolved as a simple L network of series capacity and

shunt inductance combined with an output coupling circuit. For fundamental reasons, an L network of this type cannot match a resistance component loaded in parallel across its output that is lower in value than the desired reflected load (usually 50 ohms). In practice, this lowest value is even further increased because of limits in the adjustable range of the series capacitor. However, if the load resistance is applied to the output via a series reactance, the load resistance (now the series resistance component) is reflected across the L network output as a higher parallel value. Provided there is some series reactance, the L network can therefore match values of series resistance in the load lower than the nominal minimum value. The Z match output circuit makes use of this property.

To further illustrate the effect in the Z match, refer to the circuit figure 1 (a) and its equivalent 1 (b). The impedance components R_a and X_a , reflected via the

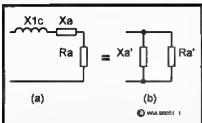


Figure 1 – Reflected components across L match.
 X_{1c} = Inductive reactance reflected from under-coupled coil
 X_a = Series reactance reflected from antenna via coil
 R_a = Series resistance reflected from antenna via coil
 $X_{a'}$ & $R_{a'}$ are the equivalent parallel components.
 If $(X_{1c} + X_a)$ is finite, then $R_{a'}$ is greater than R_a .
 If $(X_{1c} + X_a) = 0$, then $R_{a'} = R_a$ and $X_{a'}$ is infinite.

coil from the antenna, are shown in series with an inductive component X_{1c} , reflected from the under-coupled coil itself. The series circuit can be considered as a parallel equivalent with parallel components $R_{a'}$ and $X_{a'}$. Provided $(X_{1c} + X_a)$ is a finite value, then the equivalent shunt resistance $R_{a'}$ is higher than R_a and the higher the series reactance then the higher $R_{a'}$ becomes. For resistive loads, the under-coupled output coil reflects series reactance component X_{1c} on its own. When there is inductive reactance coupled in from the antenna, $R_{a'}$ is further increased and the ability of the L network to match low resistance loads is further enhanced.

Before proceeding further into the main point of our discussion, we will

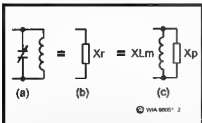


Figure 2 – Shunt tuning equivalent.
 (a) Tuning capacitor and primary coil in parallel, equals
 (b) Resultant shunt reactance (one component), equals
 (c) X_r split into two components (refer Fig 3).

clarify what happens to shunt component $X_{a'}$ connected across our L match network. First look at Figure 2. In 2 (a), we have our Z match coil primary winding with a tuning capacitor connected across it. Combining these two elements we have a single reactance 2 (b) which can be set over quite a wide range by adjusting the tuning capacitor. Let's split this into two imaginary reactances in parallel which we will call X_{Lm} and X_p (refer 2 (c)).

Now to Figure 3, which depicts the L match loaded with the equivalent parallel components previously discussed. Series component X_{Cm} (our series tuning capacitor in the Z match) and shunt component X_{Lm} are the values necessary in the L match circuit to match reflected shunt resistance $R_{a'}$. Component X_p is equal in value but opposite in sign to reflected shunt reactance $X_{a'}$ and so $X_{a'}$ is cancelled out.

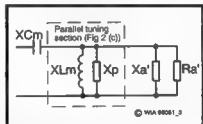


Figure 3 – L match with parallel equivalent load.
 X_{Cm} = Series capacitive reactance of L match
 X_{Lm} = Shunt inductive reactance of L match
 $X_{a'} = -X_p$.
 Note: X_{Cm} and X_{Lm} have values necessary to transform $R_{a'}$ to a resistance of 50 ohms as seen at the network input.

Having eliminated X_p and $X_{a'}$, we now have the diagram Figure 4 (a) with parallel components X_{Lm} and $R_{a'}$ in series with X_{Cm} . Making another conversion of the parallel components to series form as shown in 4 (b), we get inductive reactance $X_{Lm'}$ and resistance $R_{a''}$ both now in series with X_{Cm} . We now see a series resonant circuit. The series reactance X_{Cm} is equal but opposite in sign to reactance $X_{Lm'}$ leaving just resistive component $R_{a''}$ (Figure 4 (c)) which is 50 ohms and the correct load for our transmitter.

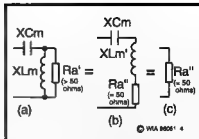


Figure 4 – L match section – conversion of shunt to series form.
 $R_{a'}$ = Parallel resistive load of L match section (greater than 50 ohms)
 X_{Lm} = Shunt inductive reactance of L match (to make $R_{a''} = 50$ ohms)
 $R_{a''}$ = Equivalent series resistance (equal to 50 ohms)
 $X_{Lm'}$ = Equivalent series inductance
 X_{Cm} = Series capacitive reactance of L match
 $X_{Cm} = -X_{Lm'}$

The Problem

Our problem area occurs for certain capacitive loads. Referring again to Figure 1, if the reflected reactance X_a is capacitive and it is small compared with the inductive reactance X_{1c} reflected by the coil, or if it is much larger, then there is unlikely to be a problem. However, if this capacitive reactance is of such a value as to cancel or near cancel the inductive reactance, then the property which causes the circuit to reflect the series resistance component as a higher parallel value is nullified or reduced. Hence, for a given frequency, there is a range in the value of capacitive reactance referred to the Z match input for which very low load resistance values in series cannot be matched.

The existence of this characteristic was fairly recently observed by Graham VK3IY when he did some theoretical analysis on the operation of the coil. Subsequent tests carried out on an AR Single Coil Z Match by Lloyd VK5BR clearly confirmed his observation.

Tests on the sample AR Single coil Z Match unit revealed a critical capacitive reactance range when combined with resistance below a critical resistance value. The range in values (including those in the unit modified to switch in 1.8 MHz) are shown in Table 1. The

resistance given is the minimum value when the capacitive reactance is in the middle of the range shown and can be considered as the worst case value. For 3.5 to 28 MHz, the values apply to a maximum tunable series capacitance in the Z match network of 350 pF. For 1.8 MHz, the value applies to a maximum tunable series capacitance of 1000 pF.

Frequency Band MHz	Xc ohms	Ra ohms
1.8	16 to 32	below 16
3.5	25 to 50	" 30
7	55 to 100	" 80
14	80 to 180	" 80
21	170 to 300	" 80
28	250 to 500	" 75

Hopefully, most *AR Single Coil Z Match* users will not have an antenna which reflects a low resistance combined with a capacitive reactance within this critical range. However, we do know of one G5RV antenna which measured an impedance on 7 MHz of 40-j100 ohms, right in the "no-go" region of the *AR Single Coil Z Match* and, hence, there was a matching difficulty using that unit. Perhaps not all G5RV installations will reflect a similar load impedance on 7 MHz but it is worth keeping in mind if one has a G5RV. Also, if a different Z match with different secondary inductance is used then the critical range of capacitance will be different and might not coincide with the antenna capacitance.

How to Fix It

Faced with the problem discussed, it can be dealt with by simply shifting the load reactance along a bit so that the no-go region is out of the antenna load range being used. There are several ways in which this can be done

(1) A capacitor can be placed in series with the antenna load, selected so that its capacitive reactance roughly doubles the reactance in the load circuit. The disadvantage with this method is that a different value of capacitor must be switched in for each frequency band.

(2) An inductor can be switched in series with the antenna load and, if suitably selected, the single inductor can

be used on all bands (refer figure 5). An experimental air wound inductor of around 1.2 μ H has been constructed. This consisted of nine turns of 14 B&S enamel wire wound at a diameter of 24 mm and spaced to a length of 27 mm. This worked extremely well, shifting the no-go region out of the nominated critical range on all bands.

(3) The coil secondary winding can be switched to reduce the number of secondary turns and, hence, alter the secondary inductance (refer figure 6). The secondary of the *AR Single Coil Z Match* has four turns and switching in a tap at three turns reduces the secondary inductance to a little over half the previous value, which is just enough to move the no-go region sufficiently on all bands except 1.8 MHz.

Which method do we use? Well, the series inductor gives the more positive no-go region shift and you only need one inductor for all bands. However, the coil tap idea saves making the inductor – so take your pick!

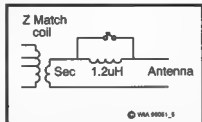


Figure 5 - Modification to allow shifting of load reactance to avoid no-go region - series inductor method.

Whilst our discussion has tended to be written around the single coil Z match, the same no-go region can be experienced in one or the other outputs of the two coil Z match. In the latter unit we have two coils of different secondary inductance and, for certain frequency and load conditions, it is possible to get a match using either coil output. As the coils are different, reflected reactances into the primaries are different and if this overlap occurs in the low resistance region, the no-go region can be dodged by changing from one coil output to the other.

On the *Compact Coil* or *Rononymous Two Coil Z Match*, recent tests have

showed that this overlap matching condition can be achieved on the 7 MHz and 14 MHz bands. In the initial design, low resistance loads can only be matched on the 3.5 MHz band using output from coil B and, hence, at 3.5 MHz this dodge is not available. However, in an article in September 1995 issue of *Amateur Radio* we pointed out that if the secondary of coil A was reduced from its seven turns to four turns, then low resistance loads at 3.5 MHz could be operated using coil A output with subsequent improvement in efficiency. By adding this modification, the overlap condition for low resistance loads is also extended to 3.5 MHz and the dodge becomes available on this band.

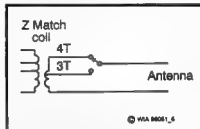


Figure 6 - Modification to allow shifting of load reactance to avoid no-go region - secondary coil tap method.

At 21 MHz and 28 MHz, matching of low resistance loads is only available using coil B and, hence, other correction methods, such as switching in the series inductor, might need to be applied. The secondary inductances in the two coil unit are higher than in the single coil unit but a satisfactory shift in the no-go region was still achieved using the previously described 1.2 μ H series inductor.

If the two coil Z match is only used on the lower HF bands then perhaps the only modification necessary is to reduce the number of secondary turns for coil A as discussed. An RSGB model version of the two coil Z match has not been available for no-go region experimentation but similar results to those obtained using the compact coil version are anticipated

Conclusion

The Z match is well known for its ability to match a wide range of load impedance conditions over the HF spectrum. However, we have described one particular load condition which, if

experienced, might require some extra attention

Our discussion has concentrated on the *AR Single Coil Z Match* and *Compact Coil* or *Rononymous Two Coil Z Match*, both of which have received prominence in past issues of *Amateur Radio*. In the single coil Z match, we have described how this no-go load condition can be avoided by switching in an additional component or switching an output coil tap. For the two coil Z match, we have discussed how the need for these further components is avoided in the 3.5 to 14 MHz range.

References

1. *Random Radiators (VK3AFW & VK3OM) Rononymous Z Match*, *Amateur Radio* March 1990.
2. *Lloyd Butler VK5BR - Tests on the Compact Coil Z Match*, *Amateur Radio*, December 1990.
3. *Random Radiators (VK3AFW & VK3OM) - AR Single Coil Z Match*, *Amateur Radio*, February 1993.
4. *Lloyd Butler VK5BR - AR Single Coil Z Match - Amateur Radio*, April & May 1993.
5. *Lloyd Butler VK5BR - Efficiency of the Z Match - Amateur Radio*, September 1995.
6. *Graham Thornton VK3IY - An L of a Network - Amateur Radio* March, April & May 1995.
7. *Graham Thornton VK3IY - Technical Correspondence - The choice of ATUs: L, Z, or T. Amateur Radio* August 1995.

*18 Ottoleng Avenue, Pottersville SA 5041

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AR

**Sign up a new
WIA member
today -
we need the
numbers to
protect our
frequencies
and privileges**

Morse Oscillator MorseMouse

Peter Parker VK1PK has built a novel Morse practice oscillator.*

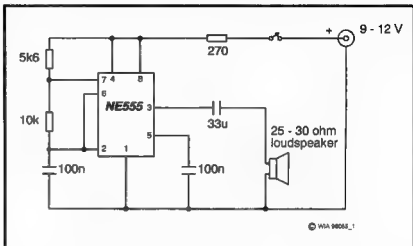


Figure 1 - MorseMouse schematic.

The Morse practice oscillator presented here is of standard design. What is unique is the packaging of the project. Instead of the conventional plastic case a discarded computer mouse houses the device. Apart from being a conversation piece for the shack, the enclosure is eminently practical as the mouse buttons can act as a built-in key. The circuit is shown in Figure 1.

All parts for the project are readily available. The mouse in which the project is to be mounted should be bought first. A used mouse may be found at computer markets and trash and treasure sales for a few dollars. The most important thing to look for is a reliable switch mechanism. A mouse large enough to enclose the circuitry and speaker should be selected.

MorseMouse can be as simple or as elaborate as you want. While the prototype is very basic, features such as a volume control, variable tone, internal battery, and socket for an external key and/or transmitter could be added.

After a mouse has been bought it must be stripped. First remove the ball from the bottom of the mouse. Then open the mouse by unscrewing the screws that

hold the top and bottom of the case together. The printed circuit board inside the mouse should now be unscrewed from the base of the mouse. This is so that all components on the board except the two switches can be unsoldered. Do not damage the board itself. It carries the mouse switches and is needed to support the small piece of matrix board on which components are mounted. Please note that another brand of mouse may be built differently. So the exact procedure outlined here may not be applicable for your unit.

Check the operation of the mouse switches with a multimeter or continuity tester. When pressed, a closed circuit should be indicated. While not essential, the two switches could be wired in parallel to allow Morse to be sent with either button.

The existing mouse cable becomes a power lead for connection to an external 9 - 12 volt supply or battery. One lead should be deemed positive. This should be soldered to one side of the switch on the underside of the printed circuit board. An 8 - 10 cm length of hook-up wire is soldered to the other, normally open, switch contact. The other end of this lead

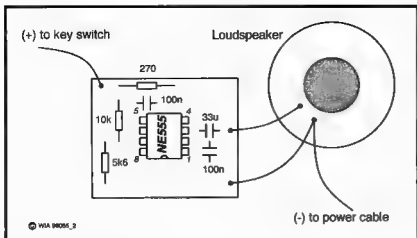


Figure 2 - Component layout.

connects to the free end of the 270 ohm resistor on the matrix board.

All components are mounted on a small piece of unclad matrix board. If there is enough space inside the mouse a socket is recommended for the 555 IC. Contrary to standard construction techniques, the IC or IC socket is mounted first near the centre of the matrix board. This is so that other components can be mounted around the IC without undue crowding.

Figure 2 gives a suggested mounting arrangement for the components. Note that all components are mounted above the board and that their leads are passed

through the holes and soldered underneath.

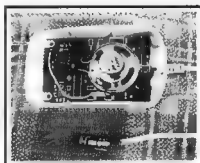
Although few parts are used, the first-time constructor will need to take extra care due to the small size of the circuit board. Particularly important are the connections underneath the matrix board. Crossing wires should be insulated from one another by slipping a piece of spaghetti tubing over one of the leads. An offcut of insulation from a piece of medium gauge insulated wire is an acceptable substitute.

It is wise to test the board for correct operation before mounting it inside the mouse. Simply connect the speaker and

apply 9-12 volts of power. A steady tone from the speaker should be audible. If not, disconnect the power and check the power polarity and the orientation of the IC in its socket. If this fails, then check your wiring against the schematic diagram.

Once satisfied that the oscillator is working, both the board and the speaker can be mounted inside the mouse case. The speaker is installed face down so that its cone is over the hole in the base of the mouse formerly occupied by the ball. A few dabs of strong glue around the rim of the speaker will bond it to the printed circuit board. As the two leads between the speaker and the matrix board are short and rigid there is no real need to glue the matrix board to the main board. However, should you wish to do so, apply the glue sparingly so the matrix board can be removed should servicing ever be required.

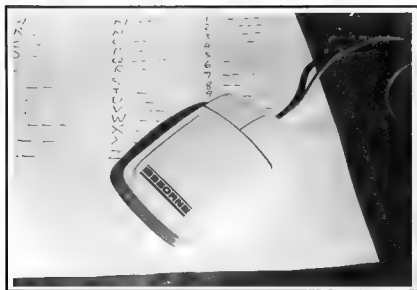
MorseMouse is presented as a fun project to which many modifications can be made. The experimentally minded



Inside MorseMouse

could use the MorseMouse circuit as the basis of a continuity tester or simple audio signal generator. Apart from the basic oscillator, a mouse could house other projects such as an iambic keyer or a small QRP transmitter. It should not be too difficult to make a pair of them linked by telephone cable to form a telegraph system for learning Morse Code and/or practising CW operating procedure off-air. Or you could simply use the mouse as a rugged and lightweight emergency Morse key particularly if operating portable. The possibilities are almost endless.

*7/1 Garratt Place, Garratt ACT 2605



MorseMouse

■ Antennas

An Antenna Problem Solved

Keith McLeod VK5MT and his XYL VK5BMT used an unusual solution to the problem of fixing their beam antenna without having to dismantle it from the tower.*

The HF beam was becoming a major problem. Not only was the reflector element of the TH4 very loose and constantly being tipped one way or the other when the galahs came visiting, but the resulting movement was such that the element was actually spinning off the boom.

What to do had been the question for quite a while. How could it be fixed without complete dismantling of the antenna systems on the tower?

Investigations revealed that to reach the required height of 50 ft (12.5 m), it was impossible to use a small cherry picker which could only reach 40 ft. The larger cherry picker needed was too big to bring into the backyard.

INSTANT SCAFFOLDING provided the answer. It took four men 1 1/4 hours to erect the structure and only two hours

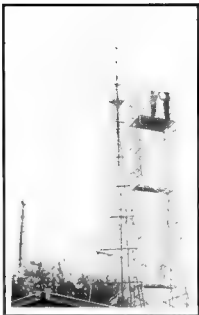
later to dismantle it. It was attached to the tower in four places and felt very secure.

Using the scaffolding, replacing the clamp/insulator was almost a pleasure.

**1 Huskies Avenue, Flinders Park SA 5025*

or

Keith VK5MT and Peter VK5ZPS carrying out the repairs with ease.



The reflector element of the TH4 was almost vertical.



The instant scaffolding being erected.

ALARA

Sally Grattidge VK4SHE*, ALARA Publicity Officer

ALARA 16th Contest, 9 November 1996

Marilyn Syme VK3DMS, ALARA Contest Manager

Bev VK4NBC	391	Top score overall, Top VK member, Top VK YL CW, Top VK Novice, Top VK4 member - Florence McKenzie Trophy
Aola ZL1ALE	266	Top DX member, Top phone, Top New Zealand member
Alan VK8AV	263	Top VK OM
Bev VK6DE	261	Top VK6 member
Aimee FK8FA	239	Top Pacific Islands member
Dave ZL1AMN	237	Top New Zealand OM
Mavis VK3KS	213	Top VK3 member
Christine VK5CTY	207	Top VK5 member
Gwen VK3DYL	206	Check log
Celia ZL1ALK	203	
Poppy VK6YF	200	
Pat VK3OZ	185	
Ivor VK3XB	169	
Marilyn VK3DMS	103	Check log
Sally VK4SHE	102	
Alma ZL1WA	101	Check log
Dot VK2DDB	98	Top VK2 member
Harvey VK3AHU	95	
VK5GGA	85	Top Club station (SA Girl Guides Assoc.)
Margaret VK4AOE	83	Check log
Dawn ZL2AGX	77	Check log
Kim VK3CYL	75	Check log
Elva ZL1BIZ	62	
Bron VK3DYF	47	
Helene VK7HD	41	Top VK7 member
Len VK3ALD	33	
Barbara VK4GTx	15	Top SWL

A total of 27 logs (including 6 check logs) was received, made up of 15 VK ALARA members, six DX ALARA members, four VK OMs, one DX OM, and one Club station.

Another Contest has been and gone, with mixed results. Firstly our warmest congratulations to Bev VK4NBC, who put in a great effort, gaining 168 points on CW to qualify for the Florence McKenzie Trophy. Bev also earned the Top Score VK YL trophy as well as various other categories!

With conditions again not very good, Bev's effort was wonderful. Many of the other scores were also remarkably high considering the effort it took to find a contact during the day. Even on 80 m in the evening the noise was bad enough to scare off all but the most dedicated. I know my ears were ringing when I closed down! Having said that, there were remarks made from those taking part that it was better than last year!

Once again we must congratulate the Girl Guides in South Australia who enjoyed their second contest just as much as their first, and our friend Alan VK8AV who has again taken Top OM. We appreciate your participation

Alan. Special mention must be made of our top VK3 member this year, Mavis VK3KS, who worked the Contest on 39 ft of wire just

above the roof tiles (and hoped her neighbour's phone wouldn't ring!) A welcome back to Australia for Barbara VK4GTx, who was only able to listen this time, having not unpacked the power supply. Of course the ALARAMEET in Perth gave an impetus to the ZL girls, with Aola ZL1ALE taking out the top DX score.

Despite the battle for contacts, everyone enjoyed the contest. It is a great way to catch up with many of ALARA's members. Thank you each one who took part, let's hope that the cycle starts to turn around just a bit by next November. See you all next 8 November for the 17th Contest!

Welcome New Members

Kath VK4KU joined in January. Elfy N6DOC joined in October last year, sponsored by Joy AK4AT. Pat ZL1LD joined in December last year, sponsored by Peggy VK6NKU.

AGM

Don't forget the AGM in May. Nomination forms for the committee are in the January newsletter, so do give serious thought to taking one of the positions; no experience is necessary, and you will be given heaps of help, so don't be shy.

Thelma Souper Memorial Contest 1997

This contest will be held on Saturday, 5 April and Sunday, 6 April from 0700 to 1000 UTC each evening. All contacts to be on 80 m. Phone and/or CW may be used. YLs contact YLs and OMs. OMs contact YLs only. One contact with each station permitted in each half hour period. Call "CQ WARO CONTEST", exchange report, serial number



Aimee FK8FA (left) and Aola ZL1ALE at ALARAMEET Perth 1996.

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A serious HF transceiver that won't break the bank and doesn't compromise performance at home like many current micro-rigs. The Yaesu FT-840 gives you full 160m-10m Amateur band coverage with 100W PEP output on SSB/CW/AM, continuous receiver coverage (100kHz-30MHz), 100 memory channels, a large back-lit LCD screen, an effective noise blanker, and an uncluttered front panel! The FT-840 is simple to use, with useful features like an SSB speech processor for added audio punch, IF Shift to fight interference, and Direct Digital Synthesis oscillators for cleaner transmit and improved receiver performance. Includes DC power lead and hand microphone - just connect your power supply and antenna and start having fun!

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2 YEAR WARRANTY \$1395



FT-8500 Deluxe 2m/70cm

The Yaesu FT-8500 2m/70cm mobile FM transceiver introduces the advantages of a large removable Omni-Glow display with all major controls on an easy to use hand microphone, and MIL-STD 810C ruggedness.

Three dual-band receive configurations (VHF+VHF, UHF+UHF, VHF+UHF) allow cross-band full-duplex as well as standard single band operation. A unique Spectra-Analyzer with selectable channel and indicator widths shows station activity and relative signal strengths. Simple menu programming with alphanumeric labeling also covers most transceiver functions. Other features include 110 memory channels, built-in CTCSS encoder, a 1200/9600 baud packet socket, battery voltage readout, DTMF paging and extensive scanning facilities. Supplied with MH-39 hand mic, DC power lead and instruction manual. Cat D-3318

Frequency Range: Tx 144-148 430-450MHz

Rx 110-174, 300-500MHz

2m - 50, 10, 5W

70cm - 35, 10, 5W

RF Output:

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2 YEAR WARRANTY



FT-10R 5 Watt 2m Hand-Held

A compact 2m hand-held with a unique clam shell design and rear-mounted NiCad battery pack that provides 5W RF output as standard through the use of a MOSFET power amplifier and extensive component miniaturisation. Built to a tough MIL-STD 810 rating for shock and vibration resistance the FT-10R also uses gasket seals for improved weatherproofing.

Features

- Tx 144-148MHz Rx 140-174MHz
- RF Output: 5, 2, 8, 1, 0, 1W
- Dual watch facility
- Large Omni-Glow backlit display
- High efficiency speaker for super loud audio
- CTCSS encode/decode
- Auto battery save, Tx save & auto power off for longer operating times
- 12V DC socket for charging and power
- Keypad frequency entry
- 99 memories
- Digital code squelch

Size: Just 62 x 100 x 42mm (WHD)

Comes with FNB 41 9 6V 600mA/H NiCad, A16D version keypad, belt-clip and AC charger

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3-15V 25A Heavy Duty Power Supply

Idea for service organisations and demanding enthusiasts! It provides DC output from 3-15V with current up to 25 amps at 15V (lower current at lower voltages), front panel metering, high current banana-style plus low-current output connections. An internal heatsink and thermally switched fan provide cooling without protrusions in the compact metal case. Specially modified for reliable long-term operation, it uses a rugged 50 amp bridge rectifier and tripler transformer plus extensive overload protection through dissipation limiting circuitry for the pass transistors, a 30 amp instantaneous current limit, AC mains circuit breaker, transformer thermal fuse and fused auxiliary secondary winding.

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Now's your chance to pick up Yaesu's latest high performance HF base transceiver, the new FT-1000MP, at a great new price. You'll be amazed at its incredible performance, but if you need convincing, just read what the experts have to say

On Operation:

"I would classify the transceiver as 'user friendly' compared to some other modern transceivers I have operated." - CQ
 "... we found it to be a proficient performer" - QST
 "... in terms of ergonomics my preference is marginally for the Yaesu. The second receiver is certainly better implemented" - Radio Comms (UK)

On Documentation:

"In general, Yaesu's manuals are the epitome of clear, concise, and complete documentation, and the FT-1000MP's 104 page Operating Manual is no exception." - QST

On The Receiver:

"Its receiver is a real beauty... its very clean and the audio is very clear and punchy..." - Radio & Communications
 "Measurement of second order intermodulation showed an average result for the IC-775DSP but the FT-1000MP was some 10dB better than any other radio measured" - Radio Comms (UK)
 "The receiver is quiet and good at its job, and Yaesu's EDSP is icing on the cake." - QST
 "Certainly, this receiver is designed to withstand the onslaught of very strong signals." - CQ

On The Transmitter:

"CW operators will be impressed with the FT-1000MP keyer." - CQ
 "The transmitter is good as well, with a lightning fast automatic tuner built in as standard" - Radio & Communications
 "The FT-1000MP has excellent spectral purity of the output signal" - CQ

Digital Signal Processing:

"The EDSP filter operates smoothly and effectively in all of its modes." - CQ
 "Having the DSP built-in means it works as well as possible - and is clearly better than most after-market add-ons." - Radio & Communications
 "The double-whammy of crystal and mechanical filters plus DSP in the FT-1000MP is a killer combination." - QST

Conclusions:

"... I am unable to report finding even a picky fault with the FT-1000MP." - CQ
 "So does the inbuilt DSP say 'buy me'? In this humble scribbles opinion, you bet!" - Radio & Communications
 "The FT-1000MP offers performance and flexibility in a quality radio." - QST

Interested in more information? Why not call us for a copy of Yaesu's 12 page colour booklet, 46 page Technical Overview, or for copies of various magazine reviews. We're sure you'll soon agree that the world of HF transceivers has just taken a giant leap forward.

QST - ARRL QST (USA) Magazine review April 1996
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 Radio Comms - Radio Communications (UK) review January 1996

Radio & Communications - Radio & Communications (Aust) review July 1996

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DICK SMITH
ELECTRONICS



Helene VK7HD (left) and Celia ZL1ALK at ALARA meet Perth 1996. Helene came to Perth via Queensland and the Northern Territory, returning to Tasmania via South Australia and Victoria.

(commencing 001) and name. To qualify as a multiplier, WARO MEMBER stations must have contacts with at least 20 different stations.

A bonus station using the WARO callsign ZL2YL will be in operation for random periods and will count as a multiplier once on each night of the contest, if worked. Club stations may be operated by multiples of YLs providing that they are WARO members and have licences applicable to the band being operated.

If a club station worked in this way sends in a log with a declaration stating that its operators are both fully licensed as well as being WARO members, they will be considered both as a legitimate contact and ONE multiplier. All radio regulations must be observed.

Scoring: To qualify:-

- Enter date at beginning of each evening.
- Each log entry must contain time of contact, callsign of station worked, cypher sent, cypher received and name of the operator contacted. Score one point for each contact, multiplied by the number of WARO members and bonus station if worked.

Logs to have each contact claimed as a multiplier underlined. Include a separate summary sheet showing:

- Your callsign, name and address;
- The number of contacts;
- The number of WARO members worked;
- Your score; and

e. A declaration that all radio regulations have been observed.

Logs which do not comply with all the above requirements will be disqualified.

Logs: To reach the contest manager, Chris Armstrong ZL1BQW, PO Box 209, Kawerau 3083 New Zealand no later than 6 May 1997. No logs will be returned and no correspondence will be entered into. Contacts made during this contest may count towards the NZ WARO Century Award.

Awards: The highest scoring WARO member and OM operator will each be awarded a trophy to be held for one year. Certificates will be awarded to the first three WARO members, the first three OM operators, and the highest scoring VK/YL operator.

11Z ARDP

Easter (28-31 March) sees the First NZ Radio Orienteering Championships take place in Christchurch. ALARA sends greetings to all competitors and organisers, wishing them a successful and enjoyable competition.

*Cin PO Woodstock, QLD 4816

Tel: 077 788 642

Packet: VK4SHE@VK4RAT#N9Q.QLD.AUS.OC

Internet: e-mail: rgnat@ozemail.com.au

11Z

Awards

*John Kelleher VK3DPP - Federal Awards Manager**

It has been requested that I clarify the situation regarding the submission of additions and alterations to DXCC listings.

Normal copy for publication must be in the hands of those responsible at least one clear month before appearing in our magazine, *Amateur Radio*. So, to complete the necessary processing of DXCC additions and alterations, I must have that information in my hands at least six weeks before publication date. For the February listings, around Christmas, and for the August listings, about the same time as mid-year stocktaking sales.

My apologies to VK4SJ (SSB 256) and VK2DEJ (SSB 317/322) who were not included in the February listings, due to late receipt of upgrade information. Incidentally, why do I only have one VK1 in my DXCC register?

Information on Awards this month comes from Canada, Pakistan, Japan, the Royal Flying Doctor Service, and the "Twenty Eight" chapter of the Ten-Ten International Net Inc.

The Stampede City Award

Sponsored by The Calgary Amateur Radio

Association. Obtain 10 points by contacting Calgary amateurs on any band, any mode from 1 January 1962. Log information ONLY is required. VE6 stations can qualify by operations from outside Alberta. The award is also available to Short Wave Listeners.

Stations VE6AO, VE6NQ (Club Stations), and Life Members VE6AP, AUZ, GQ, JI, MX, RH, RQ, SA, VK, VO, VE7DE, and VE7OK each count two points. Other Calgary stations count one point each. Send log information to: Award Manager, Stampede City Award, Calgary Amateur Radio Association, PO Box 592, Station "M", Calgary, AB T2P 2J2, Canada.

The fee for the Award is \$CDN3.00 for Canadian Amateurs and \$US3.00 for other stations.

Pakistan's Golden Jubilee Award

The Pakistan Amateur Radio Society will be celebrating the 50th Anniversary of Pakistan and shall issue special Golden Jubilee Awards to commemorate this anniversary in 1997. The independence day

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- make sure
you sell your
transmitter to
a licensed
amateur**

of Pakistan is 14 August 1997. The following rules apply for the Award

* Contact a minimum of five Pakistani Stations on any mode, ie CW/SSB/AMTOR/Packet, etc on any HF band from 1 July to 30 September 1997

* A certified copy of your log book/sheet (certified by any two radio amateurs), with a fee of five IRCs to cover postage, should be sent to: The Award Manager, PARS, PO Box 65, Lahore 54000, Pakistan to arrive no later than 31 December 1997

Pakistani Stations will be using special call sign AP50 during the award period. A special Golden Jubilee Shield will be awarded to the one station who achieves the maximum number of contacts on any mode on any band. All other foreign stations contacting a minimum of five Pakistani stations will be awarded Golden Jubilee Award certificates

JARL 70th Anniversary Awards

The Japan Amateur Radio League (JARL) was established in 1926 by a group of 37 radio communication enthusiasts. In those days there was an ardent and earnest desire to promote and to develop the utilisation of radio wave technology in Japan which resulted in those amateurs forming a national radio organisation, the present JARL.

Thanks to their continued efforts, amateur radio developed slowly but surely until currently the number of amateur radio stations in Japan is about 1,370,000, which can be regarded as being almost half of the total amateur stations in the world!

To commemorate the 70th Anniversary, the following Awards are available:

J Award - Contact at least seven Japanese prefixes.

A Award - Contact seven different countries (not JA/JD)

R Award - Contact at least seven JARL commemorative stations.

L Award - Contact at least seven Japanese stations in different grid squares (first four characters).

70 Award - Contact 70 stations on ONE band or mode. In the case of 2400 MHz or above, the number of stations are: 2400 MHz, 35; 5600 MHz, 10; 10 GHz, 7, 24 GHz, 2.

All contacts must be made between 1 June 1996 and 31 May 1997. Applications will be accepted until 31 December 1997. These awards are also available to SWLs. Please send a log entry (GCR not needed) and six IRCs to: JARL Award Desk, 14-5, Sugamo 1-chome, Toshima-ku, Tokyo 170-73, Japan.

The Royal Flying Doctor Service Award

This Award seeks to recognise the great work being done by the Australian Flying Doctor Service, and to acknowledge the assistance given, especially in its formative years, by amateur radio operators. Even today, many radio amateurs are involved in its operation.

For the Rev John Flynn, the establishment of the service, in 1928, was the fulfilment of a dream to spread a "Mantle of Safety" over the people of the vast inland of Australia, combining the use of aviation, medicine and radio. Flynn always maintained that the effectiveness of the service was 75% due to radio. Today too, the people of the inland areas of our vast continent rely to a large extent on radio to communicate with each other, and the "School of the Air" helps bring education to the children in these isolated areas.

Radio amateurs too, rely on radio to communicate with each other, not only in

Australia, but around the world. The "Twenty Eight" Chapter of 10-10 International offers this award to any radio amateur or SWL in the world (although offered by this chapter of 10-10, it is not a 10-10 activity).

Requirements are:

1. The award will be available annually, a new certificate being introduced each year.

2. Originally for contacts on the 10 m/28 MHz band, contacts can now take place on ANY BAND, ANY MODE, within the limitations of the licence held by the applicant.

3. Using as many letters as you wish from the prefix/suffix of station Call Signs worked/heard from anywhere in the world, make up the words ROYAL FLYING DOCTOR SERVICE. Each call sign can be used once only each year, but can of course be used in successive years. If you work/hear a VK station whose operator works for or relies on the RFDS for normal contact with the world, this can count as an "instant qualifier" for the award. All VK6 stations may also be claimed as instant qualifiers no matter what band or mode.

4. List all contacts, including date, band and mode, station worked/heard, location, and letters used. SWLs list (and can use) both stations heard.

5. Cost of Certificates are \$AUS5.00 in VK, or \$US equivalent for DX stations. Of this, \$AUS1.00, or enough for return Air Mail postage ONLY will be taken, and the remainder will be sent to RFDS on your behalf. If you wish to donate more to RFDS, postage ONLY will be taken. For amounts of more than \$5.00, a receipt will be issued ON REQUEST; please mark your application accordingly.

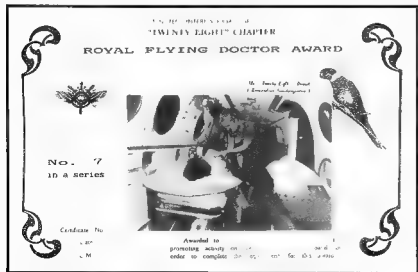
6. Please post applications to: Dave Handscomb VK6ATE, PO Box 39, Quinn's Rocks, WA 6030, Australia.

The "Six-Twenty Eights" Award

In late 1986, a number of 10-10ers in Perth got together to form a new Chapter, the first in Western Australia. To be known as the Twenty Eight Chapter, it was officially recognised in January 1987. The Chapter has continued to thrive, and January 1997 celebrates its 10th birthday. In looking around for a way to mark this great event, it was realised that 1997 is also 168 years after European settlement in Western Australia. 168 just happens to be 6 x 28. Consequently, the Chapter members have decided to issue a special award, to be available to 10-10ers and other users of the 28 MHz band. The award will also be available to SWLs.

Rules are:

1. All contacts/heard must be made on the 10 m/28 MHz band.



STAMPEDE CITY CERTIFICATE

THIS IS TO CERTIFY THAT

J. T. KELLEHER VK3DP

has been awarded the Twenty Eight Award for his contribution to the Amateur Radio community in the form of his service as a member of the committee of the Calgary Exhibition and Stampede.

CALGARY EXHIBITION & STAMPEDE

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2. Any mode (CW, SSB, FM, etc) is acceptable.

3(a). Stations in VK, ZL and P29 make two-way contact with 28 stations from at least six of the 10 VK call areas, of which VK6 MUST BE one, with at least six VK6s being members of the "Twenty Eight" Chapter of 10-10.

3(b). DX stations are required to make two-way contacts with 10 stations from at least six of the 10 VK call areas, of which VK6 MUST BE one, with at least one VK6 to be a member of the Twenty Eight Chapter.

4. The "Six-Twenty Eights" Award will be available for ten months, from 0001z 1 January 1997 to 2359z 31 October 1997.

5. Logs of stations contacted/heard, together with your Award application, should be forwarded to: Dave Hanscomb VK6ATE,

Certificate Manager "6x28" Award, PO Box 39, Quinn's Rocks, WA 6030, Australia.

6. The fees for the Award will be \$AUS5.00 for VK stations and \$US5.00 or equivalent for all other stations. This cost includes Airmail Postage.

The Chapter holds Nets every SUNDAY at 0210z and at 0830z on 28.560 MHz +/- QRM. Members also operate on the band at any time, any frequency. Chapter Members include Brian VK6NKB, Dave VK6ATE, Rob VK6RG, Mark VK6AR, Neil VK6NGN, Peter VK6HU, Syd VK6SMH, Doug VK6ASM, Tony VK6PP, Geoff VK6ZY, NCRG VK6ANC and others.

*4 Brook Crescent, Box Hill South, VIC 3128

Phone (03) 9889 8393

the event a success. Keep listening to the VK1WI Broadcast for more details.

VK1 Amateur Radio Classes

This year's amateur licence classes started last month. Being held each Wednesday at the Narrabundah Residents Hall, Morse classes begin at 7.30 pm while the theory course starts at 8 pm. If you require further information on these classes or amateur radio, please call Jeff Archie VK1JE on 294 1688 (H) or 293 3166 (W).

New Sound for VK1WI Broadcast

By the time you read this, VK1 should have a new Broadcast and Publicity Officer. After nearly two years of producing the broadcast, I have decided to stand aside and let someone else try their hand at the job. I also did not seek re-election to the committee at last month's AGM. The change means that next month's *Forward Bias* will be the last written by me.

I have enjoyed my two years as Broadcast and Publicity Officer for the VK1 Division. In that period I have seen the news service expand and embrace technologies such as packet radio and the Internet. Co-operation with other Divisions increased. Listenership steadily rose. We became South-East Australia's most successful amateur radio news service with listeners and readers in all states.

Of course, none of this progress would have been possible without the support extended to me by two successive VK1 Committees, colleagues in other states, and contributors around Australia. Our HF relay stations have often stepped in to assist at short notice, as have members of the committee. I would especially like to thank our listeners, close to 100 of whom have called back on two metres alone, for their unstinting loyalty. Without this, we would have no broadcast at all.

News Contributions Needed Now

I would urge all of you to support my successor, whoever he or she may be. The best way to do this is to contribute items to the broadcast. Maybe you've worked some rare DX, read about an interesting antenna, built a project, or tried an exotic mode. If so, you can be sure that VK1WI listeners would like to hear your story. One of the best ways of contributing broadcast items is via packet radio, and to make things even easier, VK1WI now has its own packet address for news contributions.

Send material (as a personal message) to BCAST @ VK1BBS

Messages will be automatically forwarded to the Broadcast Officer if he/she has packet

Divisional Notes

Forward Bias - VK1 Notes

Peter Parker VK1PK

Amateur Radio Comes Alive

Thousands of people will get to see amateur radio at a public display planned for later this month. November's Committee meeting gave the go ahead for the Division to establish an amateur station and information booth in front of Old Parliament House on Canberra Day.

The annual "ACT Alive" event is a chance for community groups to publicise their

activities. The committee of the VK1 Division thought the opportunity too good to pass up. Being held on March 17, the Division has decided to establish an amateur radio station on the lawns of the Old Parliament House. Other attractions on the day include music, dance, street theatre, and carnival rides.

The deadline for applications was 29 November, 1996. The Division has already advised the organising committee that it will be establishing a stall. Operators and volunteers will of course be required to make

radio, or to another committee member if he/she does not. The new address, which came into effect three months ago, has the advantage of maintaining continuity, even during times when there is a change of Broadcast Officer.

VK2 Notes

Peter Kloppenburg VK2CPK

The date for the 1997 Annual General Meeting (AGM) has been set for Saturday, 19 April. Closing days for Motions on Notice and Nominations for Council is Saturday, 8 March. The returning officer is Peter VK2EMU. You can call him on 02 9584 3236 at home.

Radio amateurs in far away places can now listen in on the 20 metre band to the weekly VK2WI Sunday broadcast. Until further notice transmissions will be on a frequency of 14.170 MHz.

In addition, the Dural team is investigating the possibility of transmitting the broadcast on the Travellers' Net frequency of 14.116 MHz.

Council discussed a possible date for the next Conference of Clubs. It was decided to hold the next conference on the date of the AGM. For further details contact the Parramatta office on 02 9689 2417.

"QRM" News from the Tasmanian Division

Robin L. Hanwood VK7AH

The Annual General Meeting of the Tasmanian Division will be held on Saturday, 22 March at the Domain Activity Centre. It is scheduled to commence at 1400 hours EDT. As I am compiling this in early February, I am unable to include an agenda, but this will be given over VK7WI in the weeks preceding the meeting. There will be some Notices of Motion tabled by the Hon Solicitor to amend the Articles of Association, and these will also be broadcast over VK7WI.

Some Councillors have not re-nominated and we would like to thank them for their contribution to Divisional Council.

Branch AGMs were conducted last month and there will be a report in the April issue on

their outcome. Details of the Divisional AGM will be in the May issue.

On Saturday, 1 February the Divisional Council met at the home of Ron Churcher VK7RN at Kelcey's Tier. This was the final meeting of Council before the March AGM and there were a few matters to tie up before then. Some of the issues addressed were Call Books, public liability insurance, repeaters and the VK7WI broadcast. An offer for a web site from a Tasmanian server was tabled but this was to be investigated further as there is a possibility a Federal site could also become available.

On Sunday, 12 January the Mount Wellington site for Repeater 6700 closed down after the VK7WI broadcast. Just six hours later the repeater was up and running from its new location at Guy Fawkes' Hill, which is close to Mount Rumney on the eastern shore. Although not as high as Wellington, it has provided fairly good coverage and many operators are once again able to access 6700. We now realise the extent to which the former site was de-sensitised by the huge levels of RF at the top of the mountain.

Incidentally, the pictures of the former ABC tower coming down at the end of January went around the world and it came down exactly in the spot predicted.

The Northern Branch had a social get-together at Scamander, on the east coast, on 11 January. Over 30 attended and this was a valuable opportunity for members who normally are not able to come to the monthly meetings in Launceston. Your scribe did not wear a hat and consequently paid the price, suffering from sunburn for a few days. Our thanks to VK7KPG and VK7MCG for making their QTH available. The consensus is that it will be an annual event.

Meetings for this month are: the Southern Branch on Wednesday, 5 March 1997 at the Domain Activity Centre at 2000 EDT; the Northwestern and Northern Branches will probably be having a combined meeting at Deloraine on 11 March, but this will be confirmed over VK7WI; and the Northwest is also planning a picnic on Saturday, 1 March at Legion Park, Ulverstone and all amateurs are welcome.

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AMSAT Australia

Bill Magnusson VK3JT*

National co-ordinator

Graham Ratcliff VK5AGR
Packet: VK5AGR @ VK5VI
E-mail: vk5agr@amsat.org

AMSAT Australia net:

Control station VK5AGR

Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):

Primary 7.084 MHz (usually during summer).

Secondary 3.885 MHz (usually during winter).

Frequencies +/- QRM.

AMSAT Australia newsletter and software service

The newsletter is published monthly by Graham VK5AGR. Subscription is \$30 for Australia, \$35 for New Zealand and \$40 for other countries by AIR MAIL. It is payable to AMSAT Australia, addressed as follows:

AMSAT Australia
GPO Box 2141
Adelaide SA 5001

Keplerian Elements

Current keps are available from the Internet by accessing the AMSAT FTP site, ftp.amsat.org and following the sub-directories to "KEPS".

New Satellite in the RS Series

It is reported that a new RS satellite is due for launch early in 1997. Some preliminary data has been doing the rounds. It will be known as RS-16 and will be launched into a 500-600 km orbit:

UPLINK = 145.915 - 145.948 MHz
DOWNLINK = 29.415 - 29.448 MHz
BEACONS = 29.408, 29.451 MHz
PWR 29 MHz DOWN = 1.2 W/4 W
BEACON 1 = 435 504 MHz
BEACON 2 = 435.548 MHz
PWR 435 MHz BEACONS - 1.6 W

Rumour Department

There are rumours circulating that we may soon see more "Iskra" type satellites ejected into quite temporary orbits from MIR. These are usually small packages almost literally pushed out of the airlock of MIR by hand. They generally have a life of about 100 days. Stay tuned for more news.

Mars Global Explorer Signals Heard

Richard G3RWL reports copying the Mars Global Surveyor on 70 cm using an Icom IC-471 (with a "souped up" front end), an MFJ DSP audio filter, a 12 element circularly polarised Yagi, a preamp, and a pair of ears well trained in CW. Richard admits that the noise reduction functions of the DSP filter were probably responsible for his reception of the weak signal from the Mars probe. This reception report is a bit unique, however, in that the signal was actually copied by ear and not by computer, as were many other reports. I have not received any reports from VK of signals heard.

Heard Island DXpedition Uses Digisats

At the time of writing, a DXpedition to Heard Island is in progress. Operators using the call VK0IR have been using amateur packet satellites to transmit current log data from one of the most remote locations on earth. Logs are uploaded from VK0IR, downloaded by ON1AIG, and transmitted from Belgium via the Internet to waiting hams around the world. Logs transmitted so far include nearly 20,000 call signs of stations which have worked the expedition. Many log files could be seen daily on the birds. A very interesting exercise for those involved and a good demonstration of the ability of the digisats to exchange heaps of data over vast distances.

SimSat Project Set to Fly in USA

The Simulated Satellite (SimSat) project is a new educational venture that allows students to fly experiments to altitudes of 60,000 feet and beyond. A SimSat "spacecraft" uses a small high-altitude weather balloon accompanied by one or more experiments. The experiments are designed and built by participating students and their mentors. The payload is tracked by groups of students and radio amateur enthusiasts as the balloon is carried by upper-level winds.

The project simulates many of the

practices and remote observing challenges inherent in working with satellites, and offers a unique hands-on experience for students. The growing SimSat volunteer group in the Washington, DC area is comprised of AMSAT members, teachers, NASA Goddard Space Flight Centre workers, community business persons, sponsors, parents, radio amateurs and others.

Selecting Frequencies for Amateur Radio in Space

The recent problem with regard to MIR frequencies is an indication of just how much thought and negotiation must go into selecting working frequencies for amateur radio satellites and space operations. With the International Space Station set to become a reality in the near future, those involved in frequency selection and band planning will need to display extraordinary skill and patience.

Most satellite operation is done on the VHF and UHF bands. In nearly every country these bands are very busy and there is pressure on the small amateur radio band segments. Whilst there is a certain amount of similarity the amateur segments are by no means the same in all countries. In some countries amateurs and commercial interests share some segments within the VHF and UHF bands. The amateur service is usually secondary to the commercial service in these cases.

Within the amateur radio bands there are many differing bandplans around the world and, if that isn't bad enough, "gentlemen's agreements" have grown up over the years as have club and group nets and the like. Because of the propagation properties of VHF and UHF transmissions, most of these differences do not pose much of a problem in day to day operation. Satellites are a different proposition, however. Every frequency, whether uplink or downlink, whether beacon or transponder, must be carefully considered in the light of the above restrictions.

The amateur radio world is divided up, for administrative purposes, into three regions. Efforts are made to harmonise bandplans within the regions. Agreement has to be reached with all regions before frequencies can be assigned to an amateur radio satellite. There have been instances in the past where clashes have occurred and there will probably be anomalies in the future. In many cases there is no easy answer to frequency selection. Spare a thought for those brave souls who unselfishly put their hands up to take on the job of co-ordinating frequencies in the amateur radio satellite service

*RMB 1627 Melbourne VIC 1678

E-mail vk3jt@amsat.org

Contests

Peter Nesbit VK3APN - Federal Contest Coordinator*

Contest Calendar March - May 1997

Mar	1/2 ARRL DX SSB Contest	(Jan 97)
Mar	8/9 Commonwealth Contest	(Feb 97)
Mar	14/15 160 m "Have A Go" Activity Period	(Feb 97)
Mar	15/16 WIA John Moyle Field Day	(Feb 97)
Mar	15/16 Bermuda Contest	
Mar	15/16 BARTG RTTY Contest	
Mar	15/16 YL-ISSB Contest	
Mar	29/30 CQ WPX SSB Contest	(Feb 97)
Apr	5/6 SP DX Contest	
Apr	11/13 JA DX High Band CW	
Apr	12/13 International HF Grid Square Contest	
Apr	12/13 "King of Spain" DX Contest	
Apr	19 Australian Postcode Contest	
Apr	19/20 SARTG AMTOR Contest	
Apr	19/20 Israel DX Contest	
Apr	26/27 Helveta DX Contest (Switzerland)	
Apr	26/27 SP RTTY Contest	
May	3/4 ARI DX Contest (CW/SSB/RTTY)	
May	10/11 Sangster Shield Contest	
May	10/11 CQ Mir DX Contest	
May	24/25 CQ WPX CW Contest	(Feb 97)

Last November I published a letter from Peter Parker VK1PK analysing the main categories of contest operation, and suggesting that a rule sometimes used in sprint contests (ie having to QSY after a certain number of contacts on the same frequency), might have more general application in other contests.

In response to Peter's comments, several readers contacted me to put their views, including Jim Muller VK1FF/WB2FFY who sent a detailed and informative e-mail message. Jim's views echo those of the other respondents: "I'd like to make a few comments on the letter you printed from Peter Parker VK1PK. Whilst I respect Peter's point of view, I have to say that I don't think his proposal would have a desirable result, and that it would probably cause overall contest activity to drop

"I consider myself a 'hard core' contesteer" and DXer and, like many others, identify with both groups one and two in that

• I operate in 10-13 contests per year, making over 100 QSOs more than half the time;

• I usually operate as much of the contest period as possible;

• I arrange my vacation and family activities around the BIG contest weekends; and

• I ALWAYS send in a log.

"But, also:

• I spend 60-70% of my operating time searching and pouncing (S&P) (Peter's group two), rather than remaining on a particular frequency for several hours (Peter's group one); although there are times when I have been fortunate to run pile-ups on a particular frequency for a couple of hours;

• I often spend a fair amount of time calling a station if it's a new one for an award, such as DXCC (for example, I called D44 in zone 35 during the CQ WW CW contest for over one hour, PY0 for 30 minutes, and A45 for 15 minutes); and

• My station is definitely modest, with a TS-520 (100 W) into 40 and 80 m dipoles only 12 m high.

"In most contests I alternate between running small pile-ups, and periods of S&P. Understanding propagation and the station's capability makes it easy to switch between the two roles. Even in 'local' contests like the RD, I find myself holding a frequency for a period of time, and then switching to S&P. So I disagree with Peter's points that:

• "many group two stations never exchange numbers with other group two", because almost anyone can run a frequency if they really want to; and

• "Group two and three contesters have much less opportunity to make calls and work each other, especially in the middle, most-used portions of the band".

"Admittedly it is often difficult for little pistols to call CQ in the middle (or on the CW bands on the low end) of the band. But who says you have to operate there to make lots of contacts. I'm often quite successful operating above the main show around 7 045 - 7 050 during openings to the US. In fact, I operated the entire ARRL DX CW contest last year exclusively above 7 045, and made over 400 QSOs with my 100 W and dipole.

"I agree, as you mention in your comments, that there have been times when I've missed multipliers or QSOs because a group two station was supposedly only calling group one stations. I also try every trick in the book to snag those stations, and sometimes it works even if it's on a group one's frequency and they have to stand by!

"There is no doubt that the key to the success of a contest is the activity of the casual operators. In addition to the definitions given by Peter, these can include medium and high power stations, who are looking for new DX contacts for awards, or just personal satisfaction. For example, several VK1s operated in the CQ WW SSB contest last October, but only one was going to send in a log. The others weren't in it for the contest - they were there to WORK NEW COUNTRIES, which they did! It was only after talking with them several times, and offering to help with the scoring, that a couple eventually submitted logs. But there were still a couple who really didn't want to be bothered submitting a log. They got out of the contest exactly what they wanted - which was to work a bit of DX and get some new ones, ie "group two to group one QSOs".

"In Peter's summary he suggests a five QSO QSY rule, when, in fact, contests like this already exist. Whilst I've won a couple of sprints of this format, I didn't enjoy them as much. In fact, I often found it harder to work new ones, because they were constantly QSYing! Contests like this appeal mainly to the "hard core" contesters. I seriously doubt we'd see a meaningful increase in group two to group two QSOs, in fact I think the opposite would happen, with less participation and fewer QSOs.

"I also think a five QSO QSY rule would be difficult in practice. Most contests with the QSY rule require the station calling CQ to move immediately after the first QSO. This makes it easy to determine who stays and who moves, without having to determine whether it was their 1st, 2nd, 3rd, 4th, or 5th QSO

"Contesting, or even operating in general, appeals to people for many reasons. I like winning, but the main thing I enjoy about contesting is the opportunity to send and receive high speed Morse and accurately work many stations as quickly as possible.

The second biggest reason is working new ones for DXCC, WAZ, and US counties. Thirdly, meeting up with people I know, albeit briefly, and lastly, to win the contest.

"Other people enjoy the technical challenge of assembling a big station and seeing how competitive it can be made (eg W3LPL, K4VX, ON4UN, etc).

"For people to want to participate in contests, there has to be something in it for them, such as the reasons mentioned above. I often try to encourage my DX friends into contests, by telling them about proposed DXpeditions and other rare activity, and I know this drew a number of VK1s into the CQ WW SSB weekend, who would otherwise not have been there.

"Also, several locals took up our offer to operate M/S from VK1DX, to see how they handled the big EU and JA pile-ups. This, of course, met with mixed results, with some really enjoying the rush, and others feeling a bit overwhelmed by the whole thing!

"Whatever the approach, we should encourage others to join in contests by showing our enthusiasm, and sharing what we enjoy about the activity."

Nicely put Jim, and I would like to thank you for the time and effort invested in the above. I think the message for contest managers is that they need to understand why people enter their contests, and ensure that their rules and objectives are aligned with what attracts the entrants in the first place. We should also keep Peter's lucid analysis of the different operating styles firmly in mind, and provide as much encouragement to group two contesters as possible, which is of course where the future group one contesters will come from.

Before signing off this month, I just want to say what a fantastic effort the VK0IR DXpedition was. In my 33 years of hamming I've never seen such enthusiasm for an event, and full credit to all those involved. The idea of transmitting the logs back to the mainland, and putting them on the Internet, was a particular stroke of genius. I mean to say, the turnaround time to see if you were in the log was just two to three seconds! Let's hope we see more of this sort of thing soon (but not too soon, I'm still recovering from the lack of sleep!)

For information and assistance this month, many thanks to VK1FF, HB9DDZ, I2U1Y, KA5WSS, OE4BKU, ODXG, and PZK. Until next month, good contesting!

SP DX Contest (CW & SSB)

1500Z Sat to 1500Z Sun, 5-6 April

Whereas previously this contest alternated between CW and SSB from year to year, this time both modes run concurrently. It is held on the first full weekend of April, and usually has a good level of European activity. Categories include single

operator (single or all band), multioperator, and SWL. Bands are 160-10 m, and modes CW or SSB. Send RST(+) plus serial number; SPs will send RST(+) plus a two letter province code. Score three points per QSO with each Polish station, and obtain the final score by multiplying by the number of provinces worked (max 49). In this contest, multipliers are counted only once, even if worked on more than one band. Mixed mode contacts are not allowed.

SWLs must receive the callsign and number sent by Polish stations, plus the callsign worked. Each SP may be logged only once per band.

Send your log, summary sheet, and multiplier check list postmarked by 30 April to: SPDX Contest Committee, Box 320, 00-950 Warsaw, Poland. Disk logs are welcome (ARRL/ASCII file format).

Polish provinces are: SP1: KO SL SZ; SP2: BY GD EL TO WL; SP3: GO KL KN LE PI PO ZG; SP4: BK LO OL SU; SP5: CI OS PL SE WA; SP6: JG LG OP WB WR; SP7: KI LD PT RA SI SK TG; SP8: BP CH KS LU PR RZ ZA; SP9: BB CZ KA KR NS TA

Japan DX CW Contest (High Band)

2300Z Fri to 2300Z Sun, 11-13 April

The object of this contest is to contact as many Japanese stations as possible on 14, 21 and 28 MHz CW. Classes include single operator (single and multiband), single operator QRP (5 W max OP), and multioperator (1 Tx). Max operating period for single operator stations is 30 hours (show rest breaks clearly in log); multioperator stations full 48 hours. Multi-operator stations must remain on a band for 10 minutes minimum.

Send RST plus CQ zone number. JAs will send RST plus prefecture number (01 - 50). Score one point per JA QSO on 14 & 21 MHz, and two points on 28 MHz. Points are doubled for QSOs with QRP stations (QRP stations must send /QRP). The multiplier equals JA prefectures + Ogasawara Is (JDI) + Miyami-Torishima Is (JDI) + Okino-Torishima Is. Send log postmarked by 9 May to: Five-Nine Magazine, Box 59, Kamata, Tokyo 144, Japan.

3rd International Grid Location Contest

1200Z Sat to 1200Z Sun, 12-13 April

This unusual HF contest is organised by WB5VZL and KA5WSS. The objective is to contact other amateurs in as many Maidenhead grid squares as possible. Classes include: single operator (phone, CW, and mixed); multioperator two transmitter mixed mode, and rover mixed mode. Maximum power for all stations is 150 W.

All HF bands may be used, excluding the WARC bands (30, 17, 12 m). Stations may be contacted once per band per mode, except for rover stations who can be worked once per band per mode per grid square they visit. Rovers will sign "rover" on phone, and /R on CW.

Exchange Maidenhead grid square (eg QF55) plus operator's name. If the grid square is unknown, the QSO is valid for points credit only. Count one point per valid QSO. The multiplier equals the number of grid locators worked on each band, summed for all bands, regardless of mode. For non rovers, the final score equals the total

QSO points times the total multiplier. For rovers, the final score equals the total QSO points from each grid times the total multiplier from each grid.

Send your log within 30 days to: Gridloc Contest, PO Box 180703, Austin, Texas 78718-0703, USA, or via the Internet to geon1@bga.com. Awards will go to the leading stations in each continent, the top ten scorers in each division worldwide, and to other leading entrants depending on the amount of activity. Note that this is an "open log" contest, meaning that logs will be made available electronically to anyone who is interested. See December *Amateur Radio* for information on the locator system.

Australian Postcode Contest

0000-2359Z Sat, 19 April

This is a new and rather different contest, to be held on the third Saturday of Apr. I each year, in which the aim is for stations worldwide to work as many different Australian Postcodes as possible. VK/VK contacts are permitted. Contacts made during this contest will be eligible for the "Worked all VK Postcode Award".

The only category is single operator all band; SSB or CW. Use 80-10 m (no WARC). Please note that, in this contest, VKs are not allowed to transmit in the 3.8 MHz DX window. VKs will send RST(+) plus their four digit postcode, and DX stations will send RST(+) plus a serial number commencing with 001.

Score two points per contact within Australia, and 10 points per contact between Australia and another country. Countries are as per DXCC/WAE. The multiplier will be the number of different postcodes worked on each band in the relevant mode, with the band totals added together. Note that repeat contacts on the same band and mode are not permitted, EXCEPT with VKs who travel to different postcodes, who can be reworked for the new postcode. The final score equals the total QSO points from all bands times the total multiplier.

Logs must show: Date, UTC time, band, mode, callsign of station worked, numbers sent and received, new multipliers, and points. Attach a summary sheet showing name, address, callsign, section, the number of valid QSOs and multipliers on each band, claimed score and a signed declaration that the rules and spirit of the contest were observed.

Send your log postmarked within 30 days to: Australian Postcode Contest Manager, Oceania DX Group, PO Box 929, Gympie Qld 4570, or fax it to (075) 482 7497, or e-mail it to odxg@keylink.com.au. Logs on disk must be standard ARRL/ASCII format.

The overall winner will receive a plaque donated by VK4FW. Certificates will be presented to the station with the highest score in each section in each country, as well as runners-up. A special award will also be presented to the highest scoring VK novice in each section. Further awards may be made at the discretion of the Contest Manager. If you would like to sponsor an award, please contact the ODXG Contest Manager at the above address.

Note that untidy logs may be disqualified, and unmarked duplicates will result in the loss of all points for the QSO as well as the deletion of three contacts following the duplication.

Israel "Holyland" DX CW/SSB Contest

1800z Sat - 1800z Sun, 19-20 April

This contest is designed to promote contacts between Israeli amateurs and the rest of the world on CW and/or SSB. Classes are single operator all bands, multiplieroperator, SWL. Send RS(T) plus serial number. Israeli stations will add their area abbreviation. Score two points per 160-40 m QSO with Israeli stations, and one point per QSO on other bands. The multiplier equals the total Israeli areas from each band (counted separately on each band). Final score equals total points times total multiplier. Send logs postmarked by 31 May to: The Contest Manager, Israeli Amateur Radio Club, Box 17600, Tel Aviv 61176, Israel. Awards include a trophy to the outright winner, wall plaques, and certificates to the top scorers in each country (minimum of 50 QSO points).

Helvetia DX CW/SSB Contest

1300z Sat to 1300z Sun, 26-27 April

Work only Swiss stations, CW on 160-10 m and SSB on 80-10 m. You may work a station only once per band, regardless of mode. Score three points per QSO; multiplier is the total number of Swiss contacts worked (max 26 per band). Send log to be received by 13 June to: Niklaus Zinsstag HB9DDZ, Salmendorflil 568, CH-4338 Rheinsulz, Switzerland. Contests are: AG AI AR BE BL BS FR GE GL GR JU LU NE NW OW SG SH SO SZ TG TI UR VD VS ZG ZH.

Results of 1996 SPDX Contest

(call/section/QSOs/pts/multi/score)

VK3DXI SOMB 106 318 42 13356

Results of 1996 ARI DX Contest

(call/section/QSOs/multi/score)

VK2APK SOCW 382 91 45775

VK4TT SOCW 9 8 416

Results of 1995 ANRL DX Contest

Congratulations to VK5GN for receiving the DX Plaque for Oceania, in both the CW and Phone sections (Multiplieroperator, single transmitter). Well done Martin.

The following results show: call, final score, QSOs, multipliers, hours of operation, power (B=low power, C=high power), and band. The certificate information for single operator phone was not received.

CW

Single Operator:

VK4EMM *	289,920	755	128	B	A
VK9XL/6	152,886	614	83	B	A
VK3DXI *	12,288	128	32	C	80
VK2APK *	109,188	674	54	B	40
VK1FF	66,297	451	49	13	C
VK4EET	54,684	372	49	B	40
VK5AI	15,795	135	39	B	40
VK3APN	2,736	48	19	B	40
VK4TT *	11,808	123	32	B	20

Multiplieroperator:

VK5GN *	365,976	897	136	C	
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(opr VK5GN, N6AA)

Phone

Single Operator:

VK8DX	111,636	443	84	C	A
VK1FF	1,326	26	17	3	B
VK2ARJ	84,816	589	48	C	20
VK3DXI	33,885	251	45	C	20
VK2APK	24,768	192	43	C	20

Multiplieroperator:

VK5GN *	321,594	806	133	C	
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(opr VK5GN, N6AA)

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af

A second problem is that many amateurs do not like to move too far away from 50.110 MHz, even when they are working a local station. But it seems to me that you can't have your foot in both doors. Anyone chatting on, say, 50.120 MHz will not hear anything that appears on 50.110, and he will make it hard for anyone else to hear it either. Why not chat on say 50.275 MHz? It is easy enough to have 50.110 in the other VFO, or in a memory, and keep an eye on it by pressing a button every now and then.

The third problem is that there is no alternative to 50.110 MHz in the band plan. This is a hangover from the idea that the window was for serious DX only, therefore it only needed one calling frequency. This needs to be changed.

On the HF bands no-one seems to have a problem with the idea of tuning the band. Everyone manages quite well without calling frequencies: they tune around, pick a frequency and make a call. Others tune around, hear them and reply. Imagine the chaos on a band like 20 metres if there was a calling frequency!

But things are different on VHF. The chances of hearing a weak DX signal are far greater if we know where to listen for it, so we have DX calling frequencies. But the side effect is that everyone gravitates to that frequency and uses it for local calling as well. The next step is that we no longer have a calling frequency because it has been turned into a net.

So, how to solve the problem? My suggestion is that we need to divide the 50 MHz window down the middle. The lower half, and its calling frequency on 50.110 MHz, should be for international DX only. The top half, especially above 50.200 MHz, should be for local or interstate activity, with its own calling frequency: I would suggest 50.200 MHz.

Other countries have been looking at the same kind of changes, so here would be our chance to solve our problems and keep up with overseas thinking.

I would very much appreciate any comments, suggestions or alternative proposals that you think might be better. Please let me have your thoughts, by mail or by packet (via VK3BBB).

One other thought about packet. I have seen a couple of bulletins on the subject of the band plan, and there may have been quite a few others that I have missed. No-one has sent me a personal message, and nothing in the mail either. What a funny thing. Here are all these good ideas floating around in limbo, while I keep asking for comments and suggestions on everything and no-one bothers to respond!

*PO Box 2175, Caulfield Junction, VIC 3161

FTAC Notes

John Martin VK3KWA, Chairman, Federal Technical Advisory Committee*

Six Metre Band Plan

There has been very little change to the six metre band plan since we were granted the use of the 50 MHz DX window.

Even then the change was minimal, in effect the 50 MHz window was just "tacked on" to the previous 52 - 54 MHz band plan. The main reason is that many DX operators argued the window should be used for international DX only, and that all domestic operation should stay on 52 MHz. There were strong objections to any suggestion that there should be a domestic band segment within the 50 MHz window.

This would be quite all right if it were not for the fact that an antenna tuned for 50 MHz is very little use on 52 MHz. No-one can be expected to put up two antennas when all the activity is on 50 MHz and there is nothing on 52 MHz.

Some DX operators are still unhappy about domestic activity in the 50 MHz

window. But it is there, it will not go back to 52 MHz, and no-one should expect it to. The window is now 300 kHz wide and there is plenty of room for long haul DX, local chat, and everything in between, with no need for any clashes.

In spite of this, there are still clashes, and the problems all seem to revolve around the use (or misuse) of 50.110 MHz.

One problem is the amount of nattering on the calling frequency. This is a bugbear on every VHF band and there is no easy answer. Some people do it because they do not understand the purpose of calling frequencies, and others are just plain selfish. Some do it for both reasons. The only solution is to come up on the frequency and ask them if they would mind moving. Unfortunately, this needs to be done over and over again, but so be it. The band plans will only work if the majority of amateurs actively support them and keep on asking others to do the same.

How's DX?

Stephen Pall VK2PS*

As I write these lines, the Heard Island DXpedition is on its way back to Reunion Island, after one of the most successful expeditions ever undertaken by a major group of amateur radio operators.

The idea of activating Heard Island again, after the success of the 1983 activities, germinated on or after the Peter I Island activity.

After the unfortunate first attempt in late 1995, which culminated in a considerable loss of money due to the "Australian boat experience" and loss of reputation among some of the DX fraternity, the proof of the pudding was in the eating. In this case, the number of QSOs completed in 13 days of activity, a staggering total of 80,673 contacts on 10 amateur bands.

There were many sceptics and many doubters. There were questions raised about the organisational ability of the group, about the capacity for finance, and the bad timing with propagation at the bottom of the solar cycle. The average DXer was not convinced about the viability of the project.

Public opinion started to change after the announcement that the transportation problem was solved by securing the French Antarctic Research vessel, the "Manon Dufresne" to carry the group of amateurs to Heard Island and back. The budget of the project was a staggering \$US320,000. A lot of money for carrying 21 people to a remote island and back just for the "fun" of operating amateur radio. The charter of the vessel was around the \$US200,000 mark. The team members contributed \$US10,000 each, a total of \$US232,000. The rest came as donations from DX Foundations, private, and corporate sources. Besides the ARRL Colvin Grant of \$5000 (mentioned in our February issue) the Northern California DX Foundation contributed \$20,000 and two individual amateurs, W6OTC and JH1AJT donated \$10,000 each.

The tales and lamentations of each individual VK and ZL amateur will be heard for many months to come. Many VKs and ZLs were not able to work VK0IR because of propagation, QRM, because of "perceived" neglect of our area and because of lack of instant information about the 24 hours forecast of planned activities from the island.

There is no doubt that VK-ZL amateurs had some disadvantage. Propagation was not the best for days, especially on the low bands. Good propagation to Europe and to the East Coast of the United States and to Japan,

tended to decide each day's activity on the island.

We must not forget that one of the primary goals of the DXpedition was to get as many as possible different stations in the log. As at Wednesday, 22 January, VK0IR had 20,407 different calls in the log for 55,000 QSOs.

A further disadvantage, in my opinion, and this was self-inflicted, was the fact that the number of VK-ZL DXers who have good and speedy DX packet facilities and/or Internet connections is very limited. Whilst the real activity was on amateur bands - "in the ether", to use old-timer jargon - the main organisational and back-up facility was on local and international telephone lines via computers and the Internet, which cost money to the unprivileged.

The Pilot Program system of ON4UN, N1DG, W0EK, KOEU, W4WW, W2IJ (responsible for the Pacific) and JH1ROJ, published at least one, very often two or three, Pilot Program Bulletins each day, about conditions, number of QSOs, antennas, beacons, 80 and 160 metre planned activities, propagation predictions, possible times and frequencies of activities (including frequency changes, of which there were at least three), on a variety of seven Internet e-mail addresses in addition to the DX packet network system which was not as "speedy" as the "real time" Internet.

How many of us ordinary VK DXers had this Internet facility, either directly or indirectly? I think, not many. How many were in the "know" about tomorrow's plans of activity on the island? A few. The overall results speak for themselves.

I personally had no access to such facilities, so I relied (as many thousands did) on the "gossip news" on the band, on my chasing instincts, and so called "skills". Yesterday, well after the closure of VK0IR, I had the fortunate opportunity to become the owner of a hard copy of the 94 messages sent over the Internet by the Pilot Program between 26 December and 1 February, contained on approximately 200 pages of print. Here are some tidbits from this massive information pile in chronological order.

Heard Island VK0IR

30 December The DX Group using the callsign TOOR on Reunion Island, becomes active, mainly on CW and 160 metres. The ship "Manon Dufresne" arrives. Captain and crew extremely cooperative.

1 January Due to a strike in France, the

departure of the ship has been delayed. The crew of the vessel goes on strike from 1500 hours on 3 January to 1500 hours on 5 January in sympathy with a general strike in France which is connected with marine transport. Meeting of the leaders of the DX Group with TAAF coordinator (Terres Australes et Antarctiques Françaises). Schedule is revised. Depart Reunion on 5 January, no stopover at Crozet, to land on Heard on 11 or 12 January as originally planned.

2 January VK2DJM and RA3AUU, the last of the operators, arrive at Reunion Island.

3 January Last checking and reloading of the containers. Total weight of the cargo of the expedition estimated at 25.6 tons.

5 January TOOR went QRT with 411 QSOs and 50 countries worked on 160 metres. The "Manon Dufresne" left at 1600 UTC for Heard Island.

9 January At 1600 UTC on Thursday the boat was 1350 km (850 nautical miles) from Heard Island.

11 January Fax from the boat: "We are a few hours away from Heard Island. Wind, NW 23 knots; Temp, +9°C; low clouds, visibility four miles, sea relatively calm."

12 January Landing started at 22.30 UTC (0330 local time) on Saturday night UTC. Sunday morning local time. All operators and equipment were put ashore by helicopter. It took five hours and 51 helicopter flights to move everything. No damage sustained. The beacon was put on air at 1130 UTC. Camp was established.

13 January All preparatory work finished, three operating tents already equipped. Beacon is operating. All generators are up and running. The village (the sleeping quarters) is located 70 m from the sea shore, the CW and SSB tents are separated by nearly 700 metres.

14 January VK0IR started operating at 0654 UTC. Problems with the PACSAT station, RF from six working stations burns out the preamp of the receiver. Great signals on 160 metres from Europe and east coast of USA, 150 reception reports were received on the beacons' activity. Pilot Stations Chief, ON4UN, reports that they had received 3500 messages on Internet since 25 December, all related to this DXpedition.

15 January Simultaneous CW and SSB operation on same band, PACSAT still not working. Propagation reports in the main tent are based on predictions, observed openings (beacon plus feedback from pilots' own logs). Japanese report hearing VK0IR around 2100 UTC on 160 m and not at 2200 UTC as predicted. Satellite openings on AO-10. The most difficult paths are to the US west coast and South America.

16 January Radio Austria International covers the expedition activities by satellite phone interviews on 18 and 19 January to all target areas world wide. PACSAT is still under repair. After 48 hours operating, 12,000 QSOs in the log (VK/ZL CW 89, SSB 149). It is very difficult to work South America. The 40 m SSB frequency has been changed to 7047.5 because of QRM. The shower is now up with a maximum of one litre of hot water each per day to shower. Heard Island is like a "black and white movie" Black from volcanic ashes, white from snow

17 January A total of 305 QSOs with VK/ZL (CW 107, SSB 191, RTTY 7). Peak report from North America on 160 m (579). The only comment about any VK activity in these Pilot programs was that Dave VK2DJM has proven to be a superior "site engineer", making sure that all is kept up well. So far there has been no major storm. Many difficulties with European pile-up. There is no discipline at all. The fibre glass section of the 80 m SSB antenna broke; they are trying to repair it.

19 January Over 37,000 QSOs have been made. Daily detailed weather received from the ship. Peter ON6TT, who is responsible for radio operations, makes use of the information sent to the Pilots, which is

processed and forwarded to the island to help in planning the next day's operation. INMARSAT proves to be unreliable for the data-link, but the radio amateur satellites KO-23 and KO-25 are excellent.

20 January At the request of the JA stations, VK0IR will be transmitting now on 1.822 MHz. USA "WWW" Internet site was visited by 27,372 visitors, and the European server by 9,809 visitors. Weather 0°C, windchill -14°C, wind 70 km/h. Hail and snow storm. After six days of operation, VK0IR had 17,240 QSOs with Europe, proving wrong the sceptics who said there would be no propagation on that path. PACSAT is up and running again, the logs are travelling via the satellites. Europeans are working the island with 100 watts and simple antennas. Peter announced that they would pay more attention to Japan on the bands. The island is active on 21, 24 and 28 MHz. Europe is elated.

21 January So far 50,017 QSOs. The 80 kph winds blew the 80 metre SSB antenna down again. The 80 m CW frequency was moved to 3504.5 and the SSB frequency to 3798 kHz. 160 m is now using 1.822 kHz. 40 m could be found on 7047.5, 7052.5, 7057.5 or on 7065 kHz. 40 m CW on 7007 or 7022 kHz.

22 January Peter said: Tomorrow will be

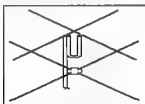
JA and EU day.

23 January So far 60,189 QSOs.

25 January 71,184 QSOs with 24,871 different stations.

26 January Rough weather, winds 90 km/h, windchill -14°C. They started to take down some antennas. The ship will arrive to pick them up on 28 January. Bob KK6EK writes: "There are 24 antennas, 12 of which are grouped into four square vertical arrays for 40, 80, and 160 m. We have a small tractor and wagon to drive heavy loads around. We run seven Honda generators continuously, providing more than 30 kW of power. An electronic camera captures still photos that are uploaded and posted on the WEB pages."

27 January Final statistics: Total QSOs logged, 80,673 (CW 45,536, SSB 33,081, RTTY 2056). Total per band: Satellite 634, 10 m 228, 12 m 748, 15 m 9,818, 17 m 9,691, 20 m 30,351, 30 m 7,111, 40 m 15,558, 80 m 5,293, 160 m 1,241. Total Japanese contacts, 14,941. Total European, 35,846. Eastern North America, 14,532. Central North America, 5,837. Western North America, 4,157. Other parts of the world, 4,647 contacts. Australian and New Zealand contacts (together): CW 253, SSB 447, RTTY 13; a total of 713. Satellite 5, 10 m 4, 12 m 2, 15 m 38, 17 m 61, 20 m 465, 30 m 32, 40 m 44, 80 m 57, 160 m 6.



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Any idea what cigarette smoke can do to the inside of your expensive transceivers? You'd better read this month's memoirs of a retired radio technician to discover the gruesome facts. Meanwhile, we present a construction project which could keep you busy for ages. What is it? Take a look at the picture above and see if you can guess...

The March issue of R&C could keep the active amateur amused forever. Here's a couple of clues...

- Tools — which ones do you really need, and which ones should you give a miss at the store?
- Gone Tropo: our regular VHF/UHF column looks at DX hogs. Are you spoiling the fun for others?
- The latest IARU list. How are international call signs allocated? Here's the full list of what's what.
- New Family Radio Service — could CB get the chop altogether with this new UHF radio service?
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29 January Last QSO took place on Monday, 29 January at 1155 UTC between VK0IR and ON4UN, the Chief "Pilot Station". The last people and the last cargo were successfully taken off the island at 0328 UTC on 29 January. A total of 49 helicopter flights were made. According to ON4UN, well over 5000 messages were handled on Internet plus the messages of the individual Pilots, plus DX-clusters and packet radio BBS systems.

1 February Because of extremely rough weather, there will be no stopover on Kerguelen. The ship will proceed directly to Reunion. The voyage between Heard and Kerguelen has been very, very rough, with 30 foot high seas and everybody sea-sick.

This is what happened in the DX World in the first month of 1997, the year of a DXpedition of a life time.

Future DX Activity

* Bill KM1E will be active as C6AGN from the Bahamas until the end of May. QSL via KA1DIG

* PZ5DX will activate Sunname from mid-March to early April. QSL via K3BYV

* Steve VE8RCS is operating on Ellesmere Island, from Alert NWT, the northernmost permanent settlement in the world.

* Hugolin XT2HB is a newly licensed amateur and has been active on 14,225 kHz around 1730 UTC on weekdays and at 0730 UTC on weekends. QSL via Dep O1.BP 6397, Ouagadougou, Burkina Faso, Africa.

* Bob 457RPG has been heard operating on 1826.5 and listening on 1837 kHz, at his sunset around 1230 UTC for North America. QSL to G3REP, his home call.

* Dick N4L5V is operating CW/SSB, 80-15 m as 9M2RY. QSL via N4JR.

* St Marten Island will be very active in February and early March. Four American hams, ND5S, KF5LG, W8EB, and KB8ZXO will be operating as PJ8/home-call. QSL via each individual home call.

* The PJ8A callsign will be used during the ARRL DX Phone Contest on 1 and 2 March. QSL via W9NIP.

* Enrique EA5AD will use the callsign 7X0AD during the year whilst he is in Algeria. QSL via EA4URE.

* Gary, who is with the Voice of America, will be active from Sao Tome as S92AT for a number of years.

* Try to work Rolf XV7SW on 160 metres. His transmitting frequency is 1.827, but he is listening "down" on 1.824 MHz. QSL via R T Salme, Embassy of Sweden, Box 9, Hanoi, Vietnam

* Hans DL8NBE and Rolf HB9DIF will be active in March from the Maldives as 8Q7BE (SSB/RTTY) and as 8Q7BV (CW)

on all bands. QSL to home calls via the bureau only.

* Gerard F2JD (ex 5R8EN) hopes to be on the air from Panama in the near future.

* Bent OZ2BJC will be on 14,320-14,330 kHz as PZ5CJ each day around 1100 UTC for a sked with his twin brother OZ2CLJ.

* Maurizio 5R8FH is a lay missionary in south central Malagasy, and can be heard on 20 and 15 m with 80 W and a three element Yagi. QSL via 11PIN.

* Ahmed SU3AM is often operating from the new club station SU0ERA. QSL via SU1ER.

* Tukang Besi Island will be activated in March, reports Tjok YB0RX. The callsign will be 8B8WI.

Interesting QSOs and QSL Information

* AP2LN - Amin - 21,276 - SSB - 1130 - Dec (E). QSL via Muhammad Amin, House 424, B Block, Nizamabad, Faisalabad, Pakistan.

* A92FZ - Bob - 14,263 - SSB - 0628 - Dec (E). QSL via W3HCW, Carl F McDaniel, 2116 Reed St, Williamsport, PA 17701, USA.

* 9U5DX - Gene - 14,164 - SSB - Dec (E) QSL via F2VX, Gerard Debelles, 4 Le Haut d'Yvrac, F-33370, Tresses, France.

* A71CW - Chris - 14,035 - CW - 1219 - Dec (E) QSL via Krzysztof Darbowski, PO Box 22101, Doha, Qatar.

* 4L1BW - Serge - 14,192 - SSB - 1235 - Dec (E). QSL via N3CBW, Herbert B Mutter, 13805 Town Line Road, Silver Spring, MD 20906, USA.

* 4L5O - Omar - 14,192 - SSB - 1237 - Dec (E). QSL via TA7A Sedat Melek, PO Box 71, TR 61000, Trabzon, Turkey.

* ZK1DI - 14,195 - SSB - 0513 - Jan (E). QSL via DK1RV, Hans-Georg Goebel, Kongsberger Str II, D-57250, Netphen, Germany.

* KHOTCN - Victor - 14,164 - SSB - 0523 - Jan (E) QSL via Victor M Tesone, Box 464, San Andres, Colombia

* P40WA - John - 7,009 - CW - 0944 - Jan (E). QSL via K9UWA John C Collier, 1624 Carroll Rd, Fort Wayne, IN 46825, USA.

* ZP0V - 14,255 - SSB - 1021 - Jan (E) QSL via ZP5WYV Yoe Zambon, POB 512, Asuncion, Paraguay

* DL0ITU Werner 14,011 CW 1127 - Jan (E). QSL via Sonder-station DARC, Sternwartenweg 23, D-24105, Kiel, Germany.

* 3DA0AC Horace 14,164 - SSB - 0604 Jan (E) QSL via Horace A Long, POB 107, Mbabane, Swaziland, Africa.

From Here There and Everywhere

* It was reported in *QRZ DX* that Andy IK4WMG said the DXCC has rejected the card for the T31/T30DP activity, because of lack of documentation.

* Referring to my previous comment on the fate of the *DX Magazine*, it has now been revealed that the magazine will be published in the future by Carl Smith N4AA, the current publisher of *QRZ DX*. The March/April issue 1997 will be the first by the new publisher.

* The following was reported recently by *Caribbean Magazine*: "The residents of Nevis Island will vote later this year to secede from the Union with St Kitts. If the result is positive, then they will become the smallest island nation in the Caribbean." A new DXCC country?

* ZS8JR still has broken 160 m antenna problems. The storm that caused the first damage to the Battle Creek Special had winds in excess of 186 km per hour.

* If you worked EP2DA from 1967 to 1971 and never got a card for that operation, try your luck with KD2DY Don Alexander, 330 Appalachian Drive, Boone, NC 28607, USA, with the usual reply envelope and return postage. Don still has parts of the log of that operation.

* Reported by Jean F6AJA that he received the logs for the FK5M expedition. QSLs will be ready in February.

* Tony WA4JQS, the leader of the South Sandwich Island Antarctic DX Group, reported that the paperwork for the 1997/98 operation is proceeding very well. Permission had been received for a December 1997 landing date. However, the possible establishment of a CCAMLR (Convention of the Conservation of Antarctic Marine Living Resources) ecosystem monitoring program to be set up on the island, to take effect in October 1997, could cause some complications before the projected landing time. For this reason, the whole activity has been postponed for another year and the group has re-applied for a 1998 season landing date. There were also many requests from JA operators who hoped that the opening of the 28 MHz band to Japan will be better. This was also a big factor in the new date request. This reminded me of my wise grandmother who said something about the *pror* who played the tune. We are talking about a 1998 Bouvet Island DXpedition.

* Steve PA3BQ will be in Ghana during February and early March, using the callsign 9G5BQ. He will try to be more active on the low bands. QSL via home call

* Advance notice. PB0ALB will be active in Sarawak from 19 April to 6 June as 9M8CC.

* Do you need Sable Island, CY0, as a DXCC country? If yes, the news is not good. Val VETAL reports that the Canadian Government has announced it plans to close the weather station on Sable Island unless private interests, who use the services, are willing to pay for it. The other possibility is that the station there will be automated. It appears that future accessibility to Sable Island by amateur radio operators could be in severe jeopardy. Sable Island has special designation as an "environmentally protected area" and government permission for "visitors" would likely be scrutinised more closely. If there will be no more permanent residents on the island, light planes might be banned from landing, for safety reasons, on the sandy beach. Approaching Sable Island by sea is extremely dangerous, as it is known as the "graveyard of the Atlantic" and this leaves only the very expensive helicopter service for transport.

* T322 has been active. The correct QSL information is via N7YL and not via W7.

* The new address of the SRR, The Soyuz Radiolyubiteley Rossii, the Russian Radio Association, which is the member of the International Amateur Radio Union, is: Soyuz Radiolyubiteley Rossii, PO Box 59, Moscow, 105122, Russia.

* When you live on an island paradise, where do you go for a holiday? To another island nearby and take amateur radio and a long wire with you. This is exactly what Meralda VR6MW, Betty VR6YL, Jay VR6JC, Michael VR6AZ, Paul VR6PL, Dave VR6DB and a number of Pitcairn Islanders did in the second part of January. A total of 26 people, 10 in one of the aluminium launches and 16 in the other boat, sailed to Oeno Island, which lies 26 miles NW of Pitcairn. They took a generator with them for evening light and radio, and drinking water. They camped in tents. Incidentally, the Pitcairn Island population has reached an all-time low. There are now only 36 residents on the island.

* A little while ago I had a CW contact with Bangladesh, with Ray S21YR. I soon found

out that Ray is actually G3WZ who, after visiting Bangladesh, came over to Sydney for a short visit. We arranged a quick "eyeball" QSO. Ray is a seasoned traveller and previously operated from Barbados as 8P9AQ, from Fiji as 3D2WZ and now from Bangladesh. Whilst the latest International Callbook shows only six callsigns, two locals and four visiting hams with the S21 prefix, there are about 12 active local hams on the bands, according to Ray. Interesting snippets from our discussion: Mains power is 240 V, but distribution has its "hiccups". Therefore, a mains power surge resistor filter is advisable, as some parts of Dhaka might have only two hours of power in a day. "In general," says Ray, "the granting of licences in Barbados and Suva was only a matter of slowness of officialdom and licences were granted for one year. In Bangladesh, at present, the slowness is similar, but the cost is greater, and for a first visit may only be for a week. There could be also some difficulty in bringing in, and taking out, your own personal amateur equipment."

* Who else was active in the past from Heard Island? Colin VK2BCC was on Heard Island between 1 October 1985 and 25 November 1985 as VIOCC, and active on CW and SSB, according to CT1BOH who worked him.

* The Sydney Morning Herald, 16 January edition, carried an article entitled "Big Ben may have erupted - you heard it here first". The article referred to a massive plume above Heard Island which was observed on satellite images at the Australian Davis base, Antarctica. The possibility of a volcanic eruption by Australia's only active volcano, was canvassed by Professor Pat Quilty who is the Australian Antarctic Division's geologist and chief scientist. The SMH said: "Professor Quilty has sent a fax to the crew of a French vessel, the 'Manon Dufresne', to inform them about the possibility that Big Ben has erupted or is erupting. The ship dropped a team of radio operators on the island last Sunday. They are scheduled to be collected on January 28." A little further in the article was: "On 28 January an Australian

Antarctic Division ship leaves Australia for a nine week voyage, which will spend three days from 19 March on Heard Island Weather and time permitting, Professor Quilty is hoping to fly over the summit and the crater to investigate the eruption".

* I have to close this column today with some sad news. Ray VK4DX, formerly VK2BKD, recently lost everything in a fire - his house, its contents and all his amateur equipment. He escaped just with the clothes he was wearing. The news travelled fast and he was inundated with sympathy messages. He wants to thank all his friends who contacted him and indicated that within six weeks or so he will be active again from some beach as mobile or as portable.

Thank You

Many thanks to my supporters who regularly supply me with news and information which makes this column possible. Special thanks to VK2XH, VK2YX, VK2DJM, VK2KPU, VK2TJF, VK9NS, VR6YL, S21YR, the Sydney Morning Herald, ARRL DX Desk, QRZ DX, The 59(9) DX Report, The DX News Sheet, The 425 DX News and the GOLIST QSL managers list.

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WIA News

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of January 1997.

VK2VZQ	MR M F RAMSAY
L40376	MR R MCLEAN
L40377	MR P FAGG
VK4YJN	MR T HOUWELING
L40378	MR G FINDLAY
VK6BSS	MR B S SMITH
VK6IP	MR K KHUEN-KRYK

Over to You - Members' Opinions

All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

Professional Communicators

I have followed with concern, over the last few years, the generally futile and flimsy arguments for CW versus no CW. The exchanges in Oct '96 and Jan '97 have finally disturbed me into a reply.

VK6VZ's comments in Jan '97 lacked logic in the following areas:

1. "The dangers in letting loose people who have no knowledge of CW on to frequency allocations where this is still a used mode....."

Commercial users utilise a number of modes in shared bands. Not all of these modes are de-codable by amateur transceivers. Is it dangerous to let amateurs on such bands? Obviously the SMA doesn't think so, or we would have lost our privileges in these bands long ago.

2. "Causing interference to a commercial or government user....."

All amateurs should avoid causing interference to all users. All amateurs should stay clear of all signals, even amateur, so as not to interfere. If a transmission began over an amateur QSO in progress on a shared band and the amateurs did not understand the transmission, they should feel obliged to move, in case they were interfering with the primary user of the band.

3. "After fighting bushfires, CW should be a breeze....."

I spent the best part of 10 years getting from 2 to 3.5 WPM, until it finally clicked and I got to 7 WPM in a month. This year I intend to get the Morse for a full call. Conversely, I read the ARRL Handbook like a novel and got my limited call in a month. The ability to do some things has absolutely no bearing on one's ability to do other things.

The following are my additions to the CW or not CW debate, as the above stream of articles are just a few in a much larger debate. Essentially, I believe we have lost the plot.

As I understand it, way back when licensing began, an operator had to prove that he/she was proficient. This involved:

- The regulations relevant to the licence.
- The theory of building a station - there being no black box rigs available.
- Communicating - the only available mode being CW.

Thus, an operator proved that he/she could assemble a station and communicate with it, complying with relevant regulations.

Essentially, these still apply today.

Operators should show proficiency in:

• Regulations. This should not include the Q code as this is only intended for use by one mode. QTH and QSO are possible exceptions.

• The theory of building a station. This implies an amateur licence is a type of experimental licence.

• Communicating in one or more of the agreed standard modes for amateur communications.

I believe that most other arguments are really not part of the debate, especially whether:

- "The Code" is easy or hard.
- Historically, CW was a requirement.
- It is still in use as a mode of communication.

Most importantly, these days CW is not the prime mode and should not hold mystical significance. It is most useful in many instances, but these are not the realm of the majority of amateurs. The number of full calls who have not used CW in years is testimony of this.

I'm sure these comments will stir up another hornet's nest. However, let's be courteous and state plausible arguments, instead of denigrating each other. Above all, amateur radio should cross all boundaries by viewing us all as equal and worthwhile people.

Greg Short VK6JCK

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Duncraig 6023

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Computer QRM

Each year as Christmas approaches I get a little edgy. Why? Computers? Someone nearby always seems to buy a newer, faster, dirtier model for Christmas. As a very keen VHF/UHF operator engaged in weak-signal work, EMI from computers is anathema, and it seems that each year they get worse, in spite of impending EMC/EMI legislation.

A few days before last Christmas, I switched on my 2 m and 70 cm gear only to be greeted with broadband hash and birdies at strength nine across the bottom end of each band. The signal peaked North-East of me. I found the offending machine, over 100 metres away. It was a new acquisition, and I told the owners of the problem. Needless to say, they were helpless. I took the details of the computer and vendor, telephoned the latter and spoke to the "engineer".

I informed him of the problem, and asked

his intentions. The answer was short but not sweet - nothing! "We are not in a position to do anything about it" was the reply, which I took to mean they got the money, now beat it!

I next telephoned the Spectrum Management Agency (SMA), and asked if they were going to do some spectrum management but, predictably, the answer was no - they just collect money. In fact despite all the brouhaha about EMC/EMI legislation, it appears that it does not take effect until 1 January 1999! I asked who will enforce it, and the reply was that the industry is expected to be largely self-regulating (flying pigs, anyone?).

Then, I thought, Market forces! If a vendor of quality, EMC-compliant products (not just computers) loses sales to a cowboy enterprise, they will surely be peeved! They might even take action. The consumer, too, has the right to be informed as to which products are susceptible to EMI, or might cause interference, as this may affect their buying decision. But who is going to do the informing? Why not the WIA?

I suggest that the WIA commence an ongoing register of products which are either susceptible to EMI or are the cause of it. The register should include the type of product (TV, video recorder, computer, etc), its brand, the supplier, and whether the supplier is helpful. The register should be published regularly in *Amateur Radio*, and radio amateurs should circulate it widely. Perhaps the WIA EMC coordinator could start a campaign to inform the public, and advise them to purchase only products which comply with relevant standards.

I'll start the ball rolling with the first entry. The computer I referred to above is a Pentium 166 of unknown brand, sold by SOUTH PACIFIC COMPUTER SERVICES in Melbourne.

This is a grave matter indeed. Sooner or later, virtually every ham operator will experience an EMC problem, whether it be TVI or the loss of one or more bands through interference. The authorities are not going to help. We have to help ourselves. Think of the thousands of dollars of equipment in a ham shack which can be rendered useless in an instant by a rogue computer.

I urge the WIA to take this matter seriously. I would be pleased to offer my assistance if this is necessary.

Chas Gnaccarini VK3BRZ

66 Smeaton Close

Lara VIC 3212

From the Coal Face

"Amateur radio is dying" I hear some of the fraternity bemoan. From a theory instructor's vantage point, I'm reluctantly inclined to agree.

Until about 1990, the excuses tried on me by prospective theory students were that Morse Code was out-of-date-stuff and that new technologies were taking its place etc, etc.

Way back in the late 1960s we gave in to these "complainers" and introduced a Novice Class licence with CW at 5 wpm and simple theory. That, we figured, would keep our numbers up and coming, and indeed it did, until the Internet appeared!

The computer began to kill off interest in ham radio, even though all our modern transceivers are dependent upon this new technology! But, at what cost?

Ask any youngster which he prefers - ham radio or the Internet? The most likely reply is an innocent, "What's ham radio?"

Surf the Net with no examinations or licence required; just enough of that folding stuff and the world is yours. No need to know what's in the box or how it really works, but only how to operate it!

It seems that we are encouraging a generation of operators rather than potential technicians; basic theories are now becoming the property of the minority. And it's not just the youngsters!

"Where's Joe Blow these days?" we ask a club member, to be informed that Joe doesn't come to the club much these days since he got himself a computer.

Visitors to most radio clubs are now being bombarded with computer jargon and

accessing information is the goal! Less and less discussion on circuitry, building of transmitters, etc. We are told that it is impractical to build much of the project when you can buy a "chip" instead. We ignore basics, so much of the technologies are being forgotten. In the commercial world, these and other technologies are being lost for financial and other curious reasons which can't be discussed here.

If we earnestly want to preserve Ham Radio, we must promote it!!

Here are some possible remedies? Hams are a conservative lot, it's said, and I believe it. So, let's be bold. I suggest dropping the Novice Class licence! Now, that will upset a few readers, but there's more! How about an AOCPL license with 2 classes? No code for the lower level licence and full privileges on ALL bands excepting 20, 30 and 40 metres. Morse at 10 wpm for these "Blue-Chip" bands!

These are only ideas, but at least it's a start! We must encourage the use of our bands which are being eyed by the commercials AND increase our numbers.

I hear some say we should drop CW altogether. If that happens, many will be sad. I believe that CW is a worthwhile skill and a character builder, both needed by our present society.

Max Morris VK3GMM
PO Box 222
Rye VIC 3941



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Pounding Brass

Stephen P Smith VK2SPS*

In previous columns we have looked at various methods to learn and become proficient in the use of Morse code. Some of the methods discussed were the use of audio cassettes and on-air transmissions run by the various volunteer groups.

Another method that is highly commended is the humble PC (Personal Computer). Most amateurs today have some form of PC, whether it's for packet transmission or downloading files from the Internet. An amateur radio operator can also learn Morse code and become quite proficient in its use by using the PC.

One of the advantages in using a PC is that you can set the speed of transmission from as low as one wpm up to 100 wpm (depending upon the program chosen) by the push of a button, whereas the use of cassettes can be quite costly when you consider you have to purchase a higher speed once the previous cassette has been learned. Also, you can use an air transmission and these are excellent to a point, as most transmissions are set to certain speeds depending upon the operator's

ability. Once learned the operator has two options to increase speed, get an operator to send at a higher speed or purchase a good Morse program and use a PC. The latter seems preferable.

In coming issues we will look at two programs which are excellent in quality and cost, "Instant Morse from the RSGB", and "The Mill" by J S Farrar which teaches both International and American Morse.

However, in this issue we will look at the "GGTE Morse Tutor - Advanced Edition". This comes with a 3.5" disc and a 16 page booklet which is well written and very easy to follow. System requirements are an IBM PC or compatible with approximately 235 kbytes of free memory.

Prior to installing the Morse Tutor Advanced Edition, you have to create a directory on your hard drive (they advise a directory named "MTA"). Once the directory is created it's a straight forward process to load the program by following the instructions.

Let's now look at the program and examine

some of the many features offered. When the program is first initiated, Morse Tutor is displayed in yellow on a blue screen as the standard default setting. To continue you hit any key which takes you to the "Selection Menu" where the following modules are displayed: Morse Tutor; Computer Generated Random QSOs; Direct Keyboard Creation of QSO, Text File input of QSO; Select Colours, Recalibrate; and Exit to DOS.

To initiate a chosen module you press the key corresponding to the first letter of the desired choice. For example, to select Morse Tutor, the first module, you type "M" and hit Enter, this initiates the program and displays the Parameter Settings which are broken down into four groups, being:

Tone frequency is set to..... 800 Hz
Morse code word speed is set to..... 30
Morse Code character speed is set to..... 30
Character display while sending is set to..... on

To initiate a module you again press the key corresponding to the first letter as mentioned above.

Tone frequency sets the note of the transmitted CW signal to the speaker outputs. The Americans use 700 Hz for practice sessions, but in Australia 800 - 825 Hz seems to be the standard (although this varies with individuals).

If you select either Morse code word speed or Morse code character speed, two options are displayed: Standard Mode; and Farnsworth Mode. In standard mode the dit is assigned one time unit, the dah three time units, the space between elements is one time unit, the space between characters is three time units, and between words is seven time units. This uniform allocation results in equal word speed and character speed and is the international standard for Morse code.

In Farnsworth the dits and dahs are shorter and the intervals between characters, and between words, are longer than with the standard mode. You can argue both methods, but Farnsworth is the way to go for me. Just follow the screen instructions, whether you chose Standard or Farnsworth, if you are unsure, try one method for a while then the other.

The last module in this group is Character display. This displays the characters on the screen as the code is being transmitted, although you can inhibit the display and just listen to the sounds.

Once the parameters are set press Enter, and you will move to another screen Menu which shows lessons ranging from lesson O through to lesson 12.

LESSON O Timing tests (sends Paris for two minutes)

LESSON I A N S O

LESSON 2 ETIM
LESSON 3-7 Remainder of the alphabet
LESSON 8-9 Numbers 1 through to 0
LESSON 10 Period, Comma, Question Mark and Slant Bar
LESSON 11 AR SK BT and KN
LESSON 12 Random QSOs.

Lets look at LESSON 1 as an example.
LESSON 1 Introduction: In this lesson you will be introduced to your first four letters, A, N, S and O. Each lesson is divided into several parts: New letters; Current characters sent randomly; and Words sent randomly.

New Letters: Each character will be displayed on the screen while it is sent five times in code working through letters A to O as above.

Current Characters Sent Randomly: Each character is sent in random order in groups of five until you stop the Morse transmission.

Words Sent Randomly: Words are sent with letters learned until you stop the Morse transmission by hitting any key.

All lessons follow this format. Once finished you are returned to the main menu again. Follow any on-screen instructions.

Computer Generated Random QSOs

Once selected from the selection menu this module will run for approximately 10 minutes (a shorter duration can be selected). When you press the Enter key, the QSO will start at the speed set previously and displayed on the screen. You can pause the program anytime by pressing any key or "X" to exit. If you decide to exit you will be faced with the options of seeing the remainder of the QSO or the QSO score board. The score board displays how many times a particular letter, number or punctuation mark was used during the transmission. Again follow any on-screen instructions.

Direct Keyboard Creation of QSO

This module is extremely useful for operators having difficulties learning certain characters or punctuation, or you can type in a complete QSO and have this transmitted back to you to get receiving practice. Once keyed in, follow the on-screen instructions. From the QSO option menu press "T" for "transmit" QSO and off it runs.

Text File Input of QSO

This module allows you to input a text file created with Morse Tutor, a word processor, or an editor, and saved as an unformatted ASCII text file.

Select Colours

This module allows you to change the default colours by selecting a range of colours, 16 in all, for both background and foreground.

Recalibrate

This is done when the disk is loaded on to the hard drive. For higher accuracy you can re-calibrate by following on screen instructions; this only takes a few minutes and alters the timing of Morse Tutor - Advanced Edition on your computer. Exit to DOS

Self explanatory.

A lot of time and effort has gone into the design of this program. Whether you are a beginner or an advanced operator, I'm sure you will find it extremely helpful in your Morse studies.

Two versions are available, Morse Tutor and Morse Tutor - Advanced. Further enquires can be made to Daycom Communications Pty Ltd in Melbourne.

Next month we will look at the RSGB Instant Morse program on CD-ROM

*PO Box 361 Mount Vale NSW 2103

III

Repeater Link

Will McGhie VK6UU*

CAD Feedback

A couple of dozen requests for copies of the CAD drawing program, Draft Choice, has been encouraging. There is interest in computer drawing for amateur radio from those who contacted me. If you would like a copy of Draft Choice version 2, then please contact me and I will supply. Also included with the Shareware program I will add some sample circuit drawings.

January Photo

I enjoyed the photo on the front cover of *Amateur Radio* for January showing the snow covered site of VK2RMS. I have always wanted to look after a repeater on a

hill covered in snow, but we just don't get snow in VK6 to any degree. The odd day in the Stirling Ranges some of the mountains get a light cover but nothing like Victoria and New South Wales. I wonder if the site owners could write up a detailed story on the repeater installation?

Regulations

What happened to the deregulation of the amateur service, particularly repeater regulations? The more I see of the regulations applied to voice repeaters the more "why bother?" I feel. It is just too hard. The fundamental point is missed. How can you have experimentation if the regulations limit experimentation. Until this point is

understood by all, repeater development is tied to what the regulators think, in a narrow perspective. You can't have finely detailed regulations and expect creativity to flourish. We need broad clever regulations, not the immense detail we now have. It seems the solution to too many regulations is to add a few more to get around the regulations. That's my opinion for what it is worth.

Latch

If your repeater uses some form of remote control, then it is almost certain that there will be a latch circuit somewhere in the control. A latch stores a command. When you send a DTMF command to a repeater, the signal you send is there only for as long as you transmit the signal. Without a latch, the command reverts back to its original state.

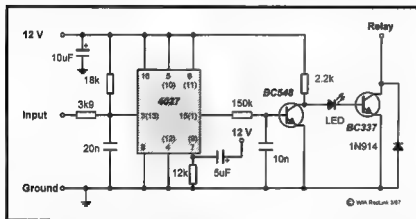
The latch is a divide-by-two circuit. The DTMF command goes from off to on to off to on. This is two cycles or pulses. However, the

reset the latch to off, making pin seven go high does just that.

Note the LED that feeds the BC337. On switch-on the LED should be off. If the input is then earthed for a short time, such as a DTMF command, the LED will light and stay on once the input goes high again. The collector of the BC337 goes to ground, and this can be used to turn on a relay, hence the inclusion of the diode. The BC337 will switch over half an amp if required.

I included the 3.9 k resistor and the 20 nF capacitor to prevent contact bounce. Most CMOS chips are very fast and any signals on their inputs that are not true on-off, but contain a "dirty" pulse, will toggle the chip more than once. You get what appears to be random toggling. It is really the chip toggling several times for each "dirty" pulse.

Also note the 150 k resistor and the 10 nF capacitor. I found that, when a relay was



A latch circuit, using a 4027 IC, which is suitable for a repeater.

latch has gone from off to on to off. This is one cycle. The latch holds the command once the command has been removed.

4027

There are many uses for latches in repeaters so I have produced this basic latch circuit using the 4027. This IC contains two latches in one 16 pin chip. I always have trouble converting the raw data as supplied in the IC handbooks to a working circuit. So many options, when all I want is a simple latch. The results of my efforts are to be found in the accompanying circuit. One most important requirement is that the latch defaults to the same state every time the power is turned off and on again. If you have a power failure at the repeater site, you want to be sure that, on restoration of power, the repeater's control circuit defaults to a known condition. This is done by the 5 μ F capacitor holding pin seven high on switch-on for a short length of time. Also, if you require to

attached to the collector of the BC337, the circuit did not operate reliably. Remove the relay and it worked fine. I have no idea why the relay caused this. I tried a capacitor across the relay to reduce spikes, and greater filtering across the 12 volt feed. Nothing worked until I added the 150 k and the 10 nF. These components fixed the problem.

The figures in brackets are the pin connections for the other toggle circuit contained on the 4027. This latch is part of a DTMF remote control circuit that I intend reproducing at a later date. The circuit is not micro controlled and is easy to construct using standard ICs. Included in the circuit is a three digit number code to do a given function, and a modification of the latch shown here. Hope the circuit is of use.

*21 Waterloo Crescent, Leamurde 6076

Packet VK6UU or VK6BBR

E-mail: wll@vsl.fairfax.com.au

■

QSP News

AMSAs Promoting Global Maritime Distress and Safety Systems

The Australian Maritime Safety Authority (AMSA) has begun promoting the use of Global Maritime Distress and Safety System technologies by recreational boaters. GMDSS, as it is known, is the "state of the art" maritime distress and safety communications system introduced in 1992 that has completely transformed maritime radio communications.

It employs modern radio communications technologies, such as satellite and digital communications, which provide prompt distress alerting and safety communications across vast ocean areas.

Designed to automate the initial radio distress alerting function, GMDSS also removes the requirement for ship and shore radio operators to personally maintain listening watches on distress frequencies.

The GMDSS will become compulsory for all ocean going merchant vessels of 300 tonnes and over from 1 February 1999 but, according to AMSA, the system is suitable for all classes of vessel.

"It is also suitable for small craft," says the Authority's Senior Marine Radio Surveyor, Glenn Dunstan, "hence our wanting to increase the use of the 8, 12 and 16 MHz radio-telephony distress channels by non-GDSS vessels, and educate the recreational boating community on the benefits of the system."

Mr Dunstan said the AMSA is particularly keen to encourage the use of Digital Selective Calling or DSC "DSC is a paging system that issues data signals to automate the transmission of distress or safety alerts via MF, HF or VHF marine radio," he said. "The DSC message indicates the identity of the calling station and the purpose of the call and is used as a means of establishing initial contact between stations. There is a dedicated DSC distress and safety channel in the MF in each of the HF marine radio bands."

Two information leaflets have been produced as part of AMSA's promotional campaign, each dealing specifically with the issues identified above. Further information is available from Glen Dunstan, AMSA, 06 279 5871

Spotlight on SWLing

Robin L. Harwood VK7RH*

As you all know by now, the Mansfield Report on the future direction of the ABC strongly recommended that the external services, that is Radio Australia and TV Australia, be scrapped and the funds saved by the axing of these services be ploughed back into the domestic services. Naturally, a predictable outcry has arisen, particularly from the Asian-Pacific regions which heavily rely on news services from Radio Australia and also from the many thousands of loyal listeners scattered worldwide. Whilst this is to be expected, it is worth noting that there has not been much comment over the possible axing of TV Australia. I believe that the ABC have been trying to find a private buyer to take it over. Although some politicians seem to feel that the future of the external services is down the satellite television highway, I strongly disagree, as there are other competing products and services with far more appeal than the fare dished out by TV Australia.

I personally think that it is extremely shortsighted to close down Radio Australia as it demonstrably has a huge impact in the Asia-Pacific regions and has been under-utilised for a number of years.

When a management decision was made to discontinue broadcasting to Africa, Europe and North America, Australia lost a valuable audience which relied on an independent voice to bring current news and information of Australia and the Pacific rim.

Another criticism I have of Radio Australia is that the choice of programming often is clearly inappropriate for the audience. Although news and current affairs dominate the output, often it is programming from Radio National that was used as a fill-in. Radio National's output is varied but I would have thought that programming should have more information for those overseas wanting to find out more about Australia rather than the views of some obscure left-wing academic in a university think tank on a topic that has no relevance to Australia.

In my opinion, RA's programming has progressively gone downhill and lost that personal touch that it once enjoyed with personalities such as Keith Glover. The disappearance of the intimacy in broadcasting is apparent in the current ABC domestic structure also, with many familiar voices disappearing to be replaced with networked programming, often from Sydney.

Listening to shortwave these days is not as

pleasurable as when one could tune to hear the famous Eddie Startz from Hilversum every Sunday with the "Happy Station", or Earle Fisher from Radio Canada International, Keith Glover from Melbourne, or even the two Bobs From Berne with the Shortwave Merry-go-Round. Thank goodness we still have Jonathan Marks on Radio Netherlands and Rudi Hill on Radio New Zealand International on-air.

Also Kim Elliot's "Communications World" on the VOA is a must. Kim's effervescent humour certainly shines through, contributing to a very interesting program. Talking of voices that have disappeared off the bands, it was pointed out to me how popular Vasily Stroganov was on Radio Moscow with his pop music programming compared to reams of Marxist rhetoric. It certainly was a breath of fresh air and was a portent of what was to come with the disappearance of the USSR. Last heard, Vasily was running a commercial FM station in Moscow.

Radio Moscow has undergone a name change and has been considerably down-sized, yet the programming is still rather rigid even though all of the Marxist stuff has gone. It was so easily heard 24 hours a day just ten years ago, but now it is damned difficult to find. Joe Adamov is still there but how he has changed since the fall of Communism. Ten years ago he was singing the praises of Lenin, now he doesn't have a kind word for the former regime.

For those who are interested in keeping up with the latest DXing news, an electronic based news service is up and running here in Australia. Known as the "Electronic DX

Press" it is the branchchild of Bob Padula, a well-known DXer in Melbourne. As the name suggests, it is for the speedy interchange of the latest DX happenings via the Internet. To continue receiving this, subscribers are required to forward news for inclusion, similar to other lists. Also hard copy of this service is available but for a subscription. For details and additional information, visit website <http://www.wp.com/edxp> or write to Bob Padula, 404 Mont Albert Road, Box Hill VIC 3127. This column will be including the "EDXP" as one of the news sources. Any information from here will have (EDXP) after it to indicate as its source.

A recent Australian development has been the WINRADIO, a communications radio that is designed to fit on a PC card and operate under a Windows platform. Frequency coverage is reportedly from 500 kHz to 1.3 GHz without any gaps. Although the focus seems to be VHF/UHF/SHF, it is claimed to also work on shortwave with the addition of an external antenna and preselector. The amount of birdies and other hash emanating from my Pentium to my existing receiving setup makes me curious to its performance so naturally I am interested to hear comments from those who have used the system. Incidentally, if you are interested in finding out further details you can visit their website at <http://www.winradio.net.au> or write to Rosetta Laboratories, 222 St Kilda Road, St Kilda VIC 3182.

That's all for this month. Don't forget you can contact me on the Internet at robroy@tassie.net.au or to the "snail mail" address at the end of this column.

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Internet e-mail: robroy@tassie.net.au

WIA MORSE PRACTICE TRANSMISSIONS

VK2BWI	Nightly at 2000 local on 3550 kHz
VK2RCW	Continuous on 3699 kHz and 144.950 MHz 5 wpm, 8 wpm, 12 wpm
VK3COD	Nightly (weekdays) at 1030 UTC on 28.340 MHz and 147.425 MHz
VK3RCW	Continuous on 145.650 MHz, 5 wpm, 10 wpm
VK4WIT	Monday at 0930 UTC on 3535 kHz
VK4WCH	Wednesday at 1000 UTC on 3535 kHz
VK4AV	Thursday at 0930 UTC on 3535 kHz
VK4WIS	Sunday at 0930 UTC on 3535 kHz
VK5AWI	Nightly at 2030 local on 3550 kHz
VK5VF	Continuous on 145.650 MHz, 5 wpm to 12 wpm
VK6RCW	Continuous on 147.375 MHz, 3 wpm to 12 wpm

Technical Correspondence

All technical correspondence from members will be considered for publication, but should be less than 300 words.

More About A Micropower Two Metre FM Transmitter

In last month's *Amateur Radio*, Rodney Champness VK3UG made several comments regarding the Micropower Two Metre FM Transmitter that appeared in November's magazine. I will respond to these in order.

1. The audio amplifier cannot work as there is no resistor in the collector lead of TR1; it draws current but TR2 won't.

Agreed. Reference to the prototype unit and the original circuit shows a 2.2 k resistor between the collector/base junction of the first and second transistors and the positive rail. This resistor was omitted from the published diagram. Readers should correct the circuit accordingly.

2. If the mic gain moving arm goes to the emitter of TR1, TR1 will self destruct. Altering the DC operating conditions of transistors (or valves) in this way easily gets the device out of the linear area of operation, particularly if a largish signal is being handled.

Agreed. Examining the prototype unit and the original circuit reveals that the wiper is connected not directly to earth (as shown in the published circuit), but through a 47 µF tantalum or electrolytic capacitor. Readers should again amend the published circuit.

3. Getting the crystal on to frequency is a bit awesome requiring up to three adjustments; once again the DC operating conditions of the transistor TR3 are changed. With so many adjustments, many people wouldn't know which to tweak for what result.

Attempting to skimp on the number of adjustable components has problems of its own. Building such a design may lead to excessive troubleshooting time if the constructor (eventually) finds that fixed component values need to be changed. Several designs were tried for this transmitter, some with fewer adjustable components than the circuit described. They didn't work as well, and took longer to adjust. I decided that a reliable, well-known circuit that did not use esoteric parts (like varicap diodes) was the best choice, even if it did require one or two extra adjustments.

4. Certainly Peter recommended using a bandpass filter, but how many of the builders of such a transmitter will build this filter?

One can do no more than recommend that they do. The article makes the need for this clear in the fifth paragraph.

5. I believe that Peter would have helped prospective builders by having an approximate layout of the board published using Drew Diamond's paddy board method.

Agreed. Previous experience with providing component layout diagrams has been that they are always the very first part of the submitted article to be left out when space is short. A change to this policy will only come about when there is evidence that the general membership would agree to some columns being curtailed to make room for longer technical articles. The extra time to redraft the extra diagrams (should this be needed) is another factor that would need to be taken into account.

Rodney's comments about the article being over-simplified are probably valid. Nothing less than a small book would be required to do the topic justice. However, for the reasons outlined above, it is unlikely that articles significantly more detailed than that submitted would be able to be published, given the need for the magazine to appeal to a diverse readership. An alternative could be for the WIA to publish its own technical handbook. However, apart from the successful WIA Book of the early 1980s, the idea, though discussed at various times, has never come to fruition. The Internet may be another solution.

In closing, I thank Rodney for his comments. The first two, which drew

attention to errors in the published circuit, have been particularly useful.
Peter Parker VK1PK
7/1 Garran Place, Garran, ACT, 2605
parkerp@pcug.org.au

Improvised Antenna

After reading the excellent treatise on hybrid antennas and radiation patterns in January *Amateur Radio*, I resolved to try a quarter wave long-wire for 40 metres. I used 33 ft of light insulated hook-up wire going from the ATU across the top of the shack door, down a hallway, across a bedroom door, then supported by a lamp shade and tied with a piece of string (no insulator) to a venetian blind.

The house is timber and tile (uninsulated). The station consisted of a KW 107 Supermatch ATU, a Kenwood TS-520S transceiver, and a good earth.

Considering the configuration, in comparison to a well balanced 40 metre dipole at an average height of 30 feet, the results were quite pleasing, being only approximately two S points down on the Coral Coast Group all round; also worked VK5BK, ZL1UE and ZL4TV.

The quarter-wave length can be calculated easily and tried for other HF bands. It could be the answer to the small block. Possibly in the ceiling where applicable, or portable from caravans, motels, flats, etc. And it's cheap, the hook-up wire plus banana plugs, came to only \$4.00!

Les Daniels VK2AXZ
9 Highfield Terrace, Cardiff Heights NSW 2285

Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

W K	SCOTT	L20870
J H	PANIZZA	L60341
F A H (Fred)	FREEMAN	VK3ALG
L H (Lionel)	DECKER	VK3EOH
R E (Rob)	GUNNOURIE	VK5FI

Rob Gunnourie VK5FI

Rob died suddenly on 20 January at age 73. He spent his early life in Longreach Queensland where he became interested in radio while still at school in the 1930s.

He enlisted in the RAAF during the Second World War in 1941, spending many hours learning radio theory by moonlight whilst on guard duty. He served his country in

England as a wireless operator/air gunner for two years.

On his return from active service he settled in Victoria and was employed at the broadcast station 3NE at Wangaratta and then at 2TM at Tamworth. On the introduction of television he was involved in site surveying for the proposed BTQ7 television station in Brisbane. His involvement was as the technical officer in charge of radio frequency coverage measurements and related problems.

He moved to Woomera in 1964 to work at the NASA tracking station until he became an employee of the Dept of Supply, also at Woomera, involved in communications and missile tracking. He then transferred down to

Adelaide and joined the Jindalee Over-the-Horizon Radar team until his retirement.

Rob had a strong interest in caravanning which he pursued often whilst retired, making many trips throughout Australia. He had a deep interest in computing and amateur radio, holding the call-signs of VK2AQG, VK4QG and VK5FI and was always an active member of the local radio club. He served on the committee of both the WIA and the North East Radio Club.

I am sure Rob will be missed by all his friends as he was a very obliging and friendly person. Deepest condolences to his wife June and family.

Rick Grivell VK5GV

Frederick Alexander Freeman VK3ALG

Fred Freeman was one of the founding members of the Geelong Amateur Radio Club in 1948 and his interest continued for nearly 49 years. At the first meeting of the club, Fred was appointed Publicity officer and it was in this position that he became the voice of the GARC through his weekly notes in the *Geelong Advertiser*.

After our meetings he would call at the Advertiser office before going home by tram to Chilwell or, as Fred would insist after a move further south, to Marnock Vale and his world of wool spinning and weaving by the Barwon River.

Fred continued to support the club and amateur radio, becoming an active home constructor of radio transmitters and receivers using many of the bits of war surplus material that were about at the time. He was enthusiastic in transmitter hunting and the weekend picnics that usually followed. He was the eyes and ears of anyone who had a motor car with a spare seat either inside or out, as his own notes will tell.

Remembering Fred, I am reminded of Sir Reg Ansett who said persistence was the key to his success. But persistence was not Fred. "Consistency" is a more suitable word and it was well earned. Fred became our QSL manager, a job that involved many hours of sorting and distributing "post cards" to hams around the world and thousands would have received their card with the stamp on the back, "VK3ALG QSL SERVICE". And it is the word "service" that also fits well when we think of Fred.

So, in those words "consistent service" we can sum up Fred's years with ham radio and add to that the memory of his company at club meetings and the Wednesday afternoon "coffee club" at the GARC. He will be leaving a gap that will take time to fill.

In memory of Fred,

Dick Heighway VK3ABK

VHF/UHF – An Expanding World

*Eric Jamieson VK5LP**

All times are UTC.

General news

David VK3AUU sent me a letter some time ago which, for various reasons, was put aside. I have apologised to David and now bring you information regarding his receiving equipment and thoughts on Aircraft Enhancement of signals.

David lives at Drouin South, away from the city noise sources, which is a decided bonus. He says that: "The antenna consists of 4 x 19 element DL6WU Yagis stacked 4.05 metres high and 4.5 metres wide at a centre height of 10 metres. Measured gain is 21 dBi. The phasing harness goes to the antenna change-over relay and GaAsFET pre-amplifier. The feedline to the main receiver is about 40 metres resulting in a 10 dB increase in receiver noise when the pre-amp is connected."

"The rig uses a Yaesu FTV700 transverter to a FT757 transceiver. Audio output goes to an Autek QFIA active filter which has a bandwidth of about 1000 Hz. The signal strength is monitored on a Wandel & Goltermann SPM-6 receiver at the FT757 455 KHz IF with the AGC disabled. The SPM-6 has an effective noise bandwidth of 1.7 KHz and the meter has a full scale reading of 20 dB, but a 110 dB attenuator can be used to measure greater signal variations."

"S readings which are equal to signal plus noise, are given as follows with reference to the residual noise. S1 is 1 dB (ie signal is about 6 dB below noise level). S2 is 3 dB, equal to noise level. S3 is 7 dB, S4 is 12 dB, S5 is 18 dB. Signals generally don't become stronger. What is interesting to note is that with this receiver bandwidth, on sideband it is possible to recognise a familiar voice at 1 dB and easily copy a callsign and report at 2 dB. This is much better than I ever would have expected from previous literature."

"Stations worked recently include VKs 1DO, 1ZQR, 1ACA, 1VP, 1BG, 1BUC, 2ZAB, 2BIT, 2XKE, 2BBF, 2BWT, 2TWR, 2FLR and 2KYP."

50 MHz Band Plan

Your comments are needed – please refer to the FTAC Notes elsewhere in this issue and make your response as soon as practicable!

"You don't need all this high gain gear to work aircraft enhancement if you are in the right place at the right time. I have worked VK3CY in Maryborough, Victoria, from the caravan park in Canberra using SSB and 80 watts to an omni-directional mobile antenna."

Mike Farrell VK2FLR reports: "By way of an update on the EME front, I was able to clear most of the sked requests out of Europe after the ARRL EME contest during December. Conditions were consistently good, with my own echoes detectable most of the time and often quite loud. As I have commented before, the slower Faraday rotation during periods of low solar activity can create conditions where I can be locked out of particular paths for a long time. It was nice to be locked in for a change."

"Between 7 and 31 December I have worked on sked DC7UT, F/G8MBI, 9HICD, EA2LU, G4YTL, DL2RSX and DL1HYZ, plus GM4JJJ on random. Both 9HICD and G4YTL are only two Yagi stations, and F/G8MBI runs only a single 6.6 wavelength Yagi with switchable polarisation. With the exceptions of EA2LU and DL1HYZ, all others are four Yagi stations running under one kilowatt. The contact with F/G8MBI gave him WAC on two metres EME with a single Yagi – a very creditable effort, and one which underscores the usefulness of switchable polarisation on 144 EME."

"Rod Graham VK2BQJ is now on 144 and 432 SSB. He is all-mode receive and FM transmit on 1296 to a small Yagi. A two metre dish is under construction. Rod also has a K1FO 22 el on 70 cm and a DL6WU 13 el on two, plus a dipole on six. A ring of 2C39s is under way for 23 cm. I think we can consider him well and truly back on again." [Good to have my old sparring partner back on the bands... VK5LP]

David VK5KK reports an update of two metres and above contacts between Christmas and New Year

"25/12 144 MHz Es to VK2 and VK4 0018 VK2BA, followed by VK4OE, VK4AFL, VK2FZ4, VK4KZR and VK4KK. Last signals at 0115. Other VK5s heard working VK2/4 included VK5PO, VK5KCX and VK5NC."

"30/12 to 2/1/97. Band open to Albany/Esperance with VK6AS and VK6KZp on 144, poor signals on 432 MHz. Band has been open for two days out of seven since the beginning of November, but nothing special so far."

"1/1/97 0705 worked VK5AKM on 10368 1 MHz (SSB) home station to VK5KK home station. Distance 31 km, signals 55 both ways with lots of trees in the way! VK5AKMs equipment: Qualcomm Transverter running 200 mW into a 600 mm dish, rotatable at 14 m. VK5KK using DB6NT, one watt into a 600 mm dish about 6 m up. Now five VK5s on narrow-band 10 GHz!"

Ron VK3AFW reports: "On 3/1 Max VK3TMP worked Bill VK6AS and Wally VK6KZ, on two metres after 11.20 pm (1220 UTC). VK3ACK and VK3ZQB also worked Bill. Andrew VK3KAQ/p heard working Wally on 432."

"My log shows the following: 5/1: 2111 144 VK7XR and 2153 VK2ZAB. 6/1: 0505 144 Rob VK3DEM worked Bob ZL3TY at Greymouth on the west coast. Bob was 5x2/3. Rob received 5x9+20. Rob now has had more two metre Es openings to ZL than VK4 this season! 1900-2000, two metre meteor scatter, exchanged reports with VK2FZ/4, but no contest number exchange completed - my last two digits not copied."

An e-mail from Steve VK2KFJ reports: "Our club, the Manly Warringah Radio Society, have a six metre voice repeater, VK2RMB on 53.675 o/p and 52.675 i/p which has been operating for three years now, but was off-air over summer due to a faulty antenna. It is now operational using two J-poles, vertically polarised, no cavities and 25 watts output. Also, the analog interface is being finalised and this will allow access to the six metre repeater from both our two metre and 70 cm repeaters."

"The club is also planning a ten metre FM simplex gateway to be connected with our existing three repeaters, to make things interesting. This will help to put some activity on to the FM portion of six metres and hopefully attract more DX opportunities. As for a six metre gateway, we would probably run a six metre FM simplex gateway, from a private residence and then cross-band feed it into the club's 70 cm repeater; this is really only speculation and depends what answer FTAC give me."

"I haven't been on six metre SSB for years, but like to keep up on what's happening. My radio activity is confined to mobile use (2 m/70 cm FM) nowadays, hence my interest in trying six metres and ten metres FM into our club repeater, the same goes for many of our club members."

"VK2RWI 53.850 is still listed as operational but is not. It made a brief operational stint for a month a few years ago, but never returned due to technical and political problems, a shame!"

"Despite reports to the contrary, the

Newcastle repeater VK2RSN on 53.625/52.625 is operational and working well when I recently checked it. It has a very distinctive tail made up of a short sequence of musical tones. The repeater operates from Mt Sugarloaf, along with three other two metre and one 70 cm repeater, but none of these are interlinked."

New Zealand

Cliff ZL1MQ sent a comprehensive listing of 50 MHz contacts between ZL and VK, comprising 4 to VK1, 29 VK2, 28 VK3, 36 VK4, 14 VK5, 1 VK6, 2 VK7, and 2 FK8. These were contacts made between 10/12 and 4/1. There were many others.

There were 55 two metre contacts in the same period. The majority were made between 0200 and 0600, but some were later, others around 2300 to 0000. In the following list multiple contacts with the same station on the same day have been omitted.

10/12: VK2FZ/4 and VK2BRG to ZL3NE; 12/12: VK2FZ/4 to ZL1AKJ, ZL3NE and ZL1TWR, VK4KK to ZL3NE; 24/12: VK2BBF to ZL3NE, VK2ZAB to ZL1TWR; 26/12: VK2BHE to ZL3NE, VK2BRG to ZL3NE and ZL1TWR, VK2DVZ to ZL3NE, VK2MZ to ZL1TWR, VK2TVZ to ZL1TWR, VK2ZC to ZL1TWR.

03/01: VK2BBF to ZL3TIC, VK2DVZ to ZL3AIC, ZL3AR, ZL3TCU, ZL3TIB, ZL3TIC and ZL3TJZ, VK2ZAB to ZL3TIB, ZL3ADT, ZL3AR, ZL3NW, ZL3TCU, ZL3TIC and ZL3TJZ, VK3BWT to ZL1TWR.

04/01: VK2BBF to ZL3NE, VK2BVZ to ZL3NE and ZL1TWR, VK2DXE to ZL3NE and ZL1TWR, VK2KBT to ZL1TWR, VK2XBE to ZL3NE, VK2KXE to ZL3NE and ZL1TWR, VK2YUS to ZL3NE and ZL1TWR, VK2ZAB to ZL3NE and ZL1TWR, VK4ABT/2 to ZL3NE, VK4ABW/2 to ZL1TWR.

Overseas

Emil Pocock W3EP in QST's The World Above 50 MHz reports: "The usual fare of December propagation included a productive Geminids meteor shower and at least 16 days with sporadic E somewhere across the country, with the MUF above 88 MHz on 15/12. VE7SKA (CN88) and VE6MK (DO33) reported an aurora session on December 10 after 0200, but only Canadian stations seemed to be in on this one. The geomagnetic disturbance may have triggered an unusual 6-metre transequatorial session the following afternoon, which allowed several Arizona stations to work Brazil."

"John Butrovich, W5UWB (EL17), reported a great mid-winter tropo opening on December 28 after 0000. From the Texas gulf

coast, John worked northward on 144 MHz as far as KB9IEC (EM69), for his best DX of the evening of about 1600 km."

Ted Collins G4UPS reports maintaining his daily contacts with G3CCH and SM7AED or SM7FJE. He regrets no others have attempted similar experiments, particularly when there are so many countries and paths in Europe which could be exploited.

Ted's additional December overseas contacts were limited to OI3MF, OZ2LD, IK0FTA, and beacons GB3BUX, GB3LER, GB3MCB, GB3NHQ, GB3RMK, HV3SJ and OZ6VHF.

Steve VK3OT advises that on 16/1/97 at 0405 he worked Kazu JA3JTG at 539, a TEP contact not normally expected at this time of the year. However, he had earlier told me (VK5LP) that he expected to do so on that day!

What is interesting is that previously he also worked JA3JTG on 16/1/96 at 0535 which was one year, one day and one and a half hours prior to this contact. Subtracting one day for 1996 being a leap year and we see the contacts exactly one year apart!

By e-mail, Hatsuo JA1VOK sent a congratulatory message to Steve regarding the above contact, acknowledging that at this



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part of the solar cycle such contacts generally are rare.

New records

John VK3KWA advises that he has processed the following new record claims:

3.4 GHz VK3XPD/3 to VK5KK/3 06/11/96 248.1 km. New VK3 record. (VK3XPD: Mt Dandenong, DB6NT transverter, 4 W to 600 mm dish VK5KK: Mt William, KK7B transverter, 4 W to 600 mm dish.)

3.4 GHz: VK3XPD/3 to VK5NC/5 18/01/97 501.5 km. New VK3 state record. (VK3XPD: DB6NT transverter, 5 W GaSfet PA, 600 mm dish, FT290 IF. VK5NC: DB6NT transverter, 5 W GaSfet PA, 600 mm dish, IC202 IF)

5.7 GHz: VK6ZAY/6 to VK6ZWZ/6 20/10/96 236.0 km. New VK6 record, and also national record from 20/10/96 to 06/11/96. (VK6ZAY: Falcon, IC202, homebrew transverter, 23" dish with horn feed. VK6ZWZ: Cervantes, 600 mW to 23" dish, penny feed.)

5.7 GHz: VK3XPD/3 to VK5KK/3 06/11/96 248.1 km. New VK3 record, and current national record. (VK3XPD: Mt Dandenong, DB6NT transverter, 2 W to 600 mm dish. VK5KK: Mt William, IC202, DB6NT, 8 W to 600 mm dish.)

5.7 GHz: VK3XPD/3 to VK5NC/5 18/01/97 501.5 km. New VK3, VK5 and new national record. (VK3XPD: DB6NT transverter, 3 W IMFET PA, 600 mm dish. VK5NC: DB6NT transverter, 5 W IMFET PA, 600 mm dish.)

5.7 GHz: VK5NC/5 to VK5KK/3 06/11/96 187.7 km. New VK5 state record.

24 GHz: VK2AXA/2 to VK3XPD/3 26/10/96 8.6 km. First VK2 state record for this band. (VK2AXA: Eastern Hill Lookout, Albany, WBFM, Gunplexer. VK3XPD: Hume Weir Caravan Park, WBFM, 40 mW Gunn, 400 mm dish.)

24 GHz: VK3XPD/3 to VK5KK/3 08/11/96 71.0 km. New VK3 state record. (VK3XPD: Mt Bolangum Equipment as above. VK5KK: Mt William. Equipment same as VK3XPD.)

Glenn VK4ZTL by fax reports that he had been quite active since the Ross Hull Contest began, but often runs out of people to work!

21/12: VK3DUQ and VK7XR; 22/12: VK7GUN; 23/12: ZL3NW and ZL4LV; 24/12: VK2EU and VK7GK. 25/12: Good two metre opening between 2358 and 0032. VK5NC, VK3AFW, VK3XPD, VK3DUQ, VK3CAT, VK3CY, VK3UM, VK3CMN and VK3AMZ, all 5x9 each way. On six metres VK3OT

29/12: 0500-0600 VK2ZZY, VK2BHO, VK3HY, VK3AZY, VK3YDE, VK3CNX, VK3BDL and VK3KMN.

21/1: 0231-0636 on six metres: VK1MJ; VK2s ZVF, DN, ZAB, GJC, AKF, APG, BZE; VK3s AZY, ZCW, OW, YDE, TMP, KAY, AKL, BWT, ATN/p, AKK, MC, WRE, CEB, TNW, DUQ; VK4WDM (Townsville); VK5s AKK, NA, AYD, PO, ZTY; VK7LZ.

Glenn commented this was a good day considering it was a quiet afternoon!

4/1: VK7XR on two metres. Also worked Gordon VK2ZAB on two metres aircraft enhancement after many attempts. Distance 934 km. Glenn worked Gordon again on 8/1 at 2051 and again on 15/1 at 2050. All signals 5x1 each way. Note closeness of time.

12/1: Worked Doug VK4OE/p at Stanthorpe during Field Day Contest on 1296 MHz for best ever distance of 391 km, using a Downeast Microwave Transverter Kit with 15 watts to a 45 element loop Yagi.

Beacons

Geoff GJ4ICD said by e-mail that: "The YB0ZT beacon prepared by Rex VK8RH, was installed on 50.042 at Jakarta repeater site in O133 with a ground-plane 20 m during December, according to YC0UVO. The beacon keeper is Budi YB0HD and he can be called on 50.110.

"The SW1WS beacon prepared by ZL2TPY is expected to be installed on 50.050 in AH46 with 10 W and 5 el by Phil SW1AU late January. Kerry hand-passed the beacon set to Phil last month ...de JA1VOK

"16/1/97: For information, the Darwin six metre group have developed a five watt beacon/keyer combo designed for remote and solar applications. We hope to deploy this to P29 and several others around the top of Australia. There is also a 50 watt PA option for the unit....Rex VK8RH.

"14/1/97: The VK3SIX beacon is restored and running 15 watts and beaming north. Frequency is back to WIA FTAC assigned 50.053 ...de VK3OT."

Internet Six News

Courtesy Geoff GJ4ICD and Internet Six News. 1/1. 1030 VK6HK 41 Perth working VK3AMZ, 1031 VK6KAT 41 Perth, 1035 VK6KRC 55 Perth OF78 2750 km At last! A long awaited VK6 opening. Only open for 15 minutes. ...de Adam VK3ALM

5/1: 0223 ZL3TIC to VK6BE, VK6APZ 50.120, VK6RPH/b also in at 0142

6/1: Long opening to ZL - 0800 ZL2MQ 58 RF80, 0804 ZL2IA 58 RF80, 0809 ZL2TPY 59+ RF70, 1054 VK5ZBK 59 backscatter from east, 1530 ZL3SIX/b 529. Steve VK3OT reports that the ZL path was open from 0700 at least until 1200 station close. It was still open at 1930 with 45.250 NZTV Wellington. The MUF rose to 67 MHz last evening and two metre contacts occurred again. Stations in VK and ZL have been

reporting up to five hours of sustained propagation on 144 MHz between VK7 and VK4, and two hours between ZL and VK3/VK7. The VK6APZ to ZL3TIC QSO between PF06 and RE66 lasted for several minutes and was calculated at 4850 km.

7/1: 1130 ZL4TBN calling CQ VK6, Perth - Melbourne opening on two metres at this time. 1145 ZL3SIX/b 519, ZL Ch 45.240/250/260 video, ZL Ch 2 55.250 video, 1214 ZL4TBN, 1219 ZL3AAU ...de VK3ALM.

12/1: Steve VK3OT reported: 0005 worked ZL3TY 53 both ways. 0100 50.130 VK6KDX, VK6ACY into VK1, 0214 50.306 VK6RBU/b Bunbury, 50.110 VK6RO VK6AO, plus VK1, VK2, VK3 and VK5 into Perth, 50.130 VK1RX back. 50.220 VK6ACY 25 W to 4x7 el Yagis FB signal, 0230 50.175 VK6HK, 0250 50.066 VK6RPH/b Perth 559, 50.306 VK6RBU/b Bunbury 319, 50.110 VK6KRC CQ call 55, 50.306/b VK6RBU up to 359, 50.066 VK6RPH/b down to 339. Best VK6 opening for this year.

13/1: Massive Es in USA! The USA saw nearly eight hours of Es yesterday, contacts were made with Mexico and most of the USA.

15/1: VK3OT TEP/Es Report: 0300 49.750 partly Vladivostok - significant in JA path. 0316 50.009 JA2IGY/b into VK3 from PM84jk, 0349 50.111 JA3JTG CQ call on CW, 0353 JA5CMO CQ, 0405 50.110 JA3JTG Kazu in PM75pc worked 539/559, 0418 50.111 JF2HEV called but could not make two way.

20/1: A major Es opening in Europe to OK, OE, DL, GM, SM, LA, HB9, HB0, SP, OZ, I, F, EA, CT, etc, 18 countries were logged. In the morning there were three hours of Es and later in the day another four hours. The MUF went over 90 MHz!

24/1: ZL news de ZL3TY: 2221 FK8FU, 2255 ZL3NW backscatter, 2308 VK4TZL, 2325 VK4SIX, 2345 VK2QE. 25/1: 0314 VK2YO, 0455 VK6APZ, 0545 VK1RX, 0551 VK5PW, 0554 VK5RO, 0604 VK7GUN, 0615 VK3DEM, 0630 VK7XR, 0802 VK4KK, 0902 VK7DC, 0955 VK2BHO.

Mike ZL3TIC reports: "25/1: The band was open all day, lots of backscatter, heard ZL3TY, ZL4LV, ZL4TBN and ZL4TPY. The day opening peaked about 2 pm local, also at noon American Samoa TV (55 2495.5, 59.7495 NTSC was S9+), but where are the SW1s, 3D2s, etc. The second peak was about 7 pm when we had VK1, 2, 3, 4, 5 and VK6APZ in also. Two metres opened with pagers up to S9+ but did not work anyone, the broadcast band was wide open to VK7 region.

"25/1: from Dave ZLATBN: 0400 VK2FZ/p4, 0512 VK3DEM 59+, 0515 VK3DUT 59+, 0856 VK7DC 53-4, 25/1 from Frank ZL2AGI: 0519 VK4JH 50 135, 23/1: 0937 VK5BC 50.110 CW, 15/1: 2319 VK2DN 50.105 CW, 15/1: 0950 VK5BC 50.110 CW"

Richard VK2ARS sent information regarding the activities of the VK2 VHF/UHF Group. I cannot include that information this month, but will do so in due course. He also included the following as contacts made on the bands two metres and above for the month from 22/12. All contacts are on 144 MHz unless otherwise noted.

22/12: 0200 VK2ZAB ZL1IU 57 57, 0542 VK2ZAB ZL1IU 53 52

24/12: 0115 VK2BBF ZL1IU 55, 0413 VK2BBF ZL1IU 55, 0414 VK2ZAB ZL1IU 57 59, 0443 VK2BBF ZL3NE 56, 0444 VK2BBF ZL1TWR 57, 0447 VK2ZAB ZL1TWR 57 57, 0448 VK2ZAB ZL3NE 57 59.

26/12: 0115 VK2ZAB ZL1IU 57 59.

27/12: 0239 VK2ZAB ZL2TPY 56 58, 0420 (23 cm) VK2FLR VK2ZAC 53 53, 1855 VK2FLR VK2ADY 55 59 Cessnock, 1915 VK2FLR VK1DO 55 55, 1920 VK2FLR VK2ZRE 55 55 Adaminaby, 19:42 VK2FLR VK3AFW 51 529 Melbourne (CW), 19:47 VK2FLR VK2TWR 53 53, 2000 VK2FLR VK1BG 57 59.

28/12: 0445 VK2FLR VK2DVZ 52 51 Taree (back of beam), 1919 VK2FLR VK1BG 54 56, 1940 VK2FLR VK2ZRE 52 53, 2025 (23 cm) VK2FLR VK2ZAB 57 53.

29/12: 1907 144.088 (EME) VK2FLR G4YTL O O 2 Yagis, 1938 144.067 VK2FLR DL2RSX O O 8 x 5 el Yagis, 2007 144.088 VK2FLR DL1HYZ O O 8 Yagis, 2020 VK2FLR VK1BUC/2 53 55 Batemans Bay, 2030 VK2FLR VK2AAS/2 55 57, 2152 (23 cm) VK2FLR VK2ZAB 57 56.

30/12: 2050 144.054 VK2FLR 9HICD O O 2 Yagis, 2138 144.054 VK2FLR GM4JJJ O O 4 Yagis.

1/1: 1900 (23 cm) VK2FLR VK2ZAB 58 58.

3/1: 0157 VK2ZAB ZL3AR 53 57 Es, 0200 VK2ZAB ZL3TIC 56 58 Es, 0208 VK2ZAB ZL3TIB 54 55 Es, 0219 VK2ZAB ZL3AIC 52 55 Es, 0225 VK2BBF ZL3TIV 51, 0235 VK2ZAB ZL3NW 51 53 Es, 0237 VK2ZAB ZL3TCU 53 52 Es, 0242 VK2ZAB ZL3TJZ 52 54 Es, 0245 VK2ZAB ZL3TLG 55 56 Es, 0248 VK2ZAB ZL3TIV 53 51 Es, 0336 VK2BBF ZL3ADT 51, 0340 VK2ZAB ZL3ADT 53 54 Es, 0406 VK2BBF ZL3AIC 51, 0408 VK2BBF ZL3TIC 41, 2053 VK2ZAB VK4TZL 31 41 Tropo-scatter, 2155 (23 cm) VK2FLR VK2ZRU 59 59, 2130 (70 cm) VK2FLR VK2BQJ 57.

4/1: 0412 VK2ZAB ZL1IU 53 53 Es, 0413 VK2BBF ZL1TWR 57, 0413 VK2ZAB ZL1TWR 54 57 Es, 0421 VK2ZAB ZL3NE 57 59 Es, 0426 VK2BBF ZL3NE 55, 0652 VK2BBF VK7XR 59, 1910 VK2FLR VK2FZ/4 41 51 80 km N of Brisbane, 1945 VK2FLR VK3AMH 53 55 Nagambie, 1610 VK2FLR VK3BWT 53 56, 2032 VK2ZAB VK4TZL 54 54 tropo inversion.

5/1: 1845 VK2FLR VK2FZ/4 53 52, 2155 VK2ZAB VK3AFW 51 52 aircraft reflection.

6/1: 0021 (70 cm) VK2ZAB VK3TMP 51 51 aircraft reflection.

7/1: 2050 VK2ZAB VK4TZL 51 51 aircraft reflection.

11/1: 0057 (23 cm) VK2ZAB VK2EMA 51 51 aircraft assisted/tropo, 1450 VK2FLR VK1ACA/p1 57 59 Mt Ginn, 1450 (70 cm) VK2FLR VK1ACA/p2 53 529

12/1: 0017 144.07 VK2FLR VE3AX O O 4 Yagis, 0141 VK2BBF VK5PO 59, 0142 VK2BBF VK5RO 59, 0144 VK2BBF VK5AKK 59, 0148 VK2BBF VK5ZLX 55, 2335 VK2FLR VK5PO 59 59 Es, 2338 VK2FLR VK5ABI/p5 53 59 Es, 2343 VK2FLR VK5RO 59 59 Es, 2345 VK2FLR VK5AKK 57 59 Es, 2347 VK2FLR VK5ZLX 57 55 Es, 2335 VK2FLR VK2EU/p2 42 44 Captain Flat QF44

19/1: 2115 (70 cm) VK2ZAB VK4AFL 51 51 tropo inversion.

20/1: 2248 VK2ZAB ZL2TAL 53 55 tropo ducting, 2305 VK2ZAB ZL2VAL 53 55 tropo ducting, 2316 VK2ZAB ZL1SL 54 56 tropo ducting, 2338 VK2ZAB ZL1RS 58 59 tropo ducting.

Closure

There has been a great deal of information received again this month, which is appreciated. However, similar information is sometimes received from more than one source, so I need to be

alert to prevent doubling of news.

March and April cover the equinox, so be aware that TEP may be more common during those two months.

Closing with two thoughts for the month:

1. A generation ago most men who finished a day's work needed rest; now they need exercise, and

2. The kindness planned for tomorrow doesn't count today.

73 from The Voice by the Lake.

*PO Box 169, Menangle SA 5264

Fax 08 8575 1043

Packet VK5LP@VK5WI #ADL #SA AUS.OC

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ar

Dx Stop Press

New IOTA Island - St Peter Island

A group of four South Australian amateurs, under the leadership of Mal VK6LC, will activate this new island from 28-31 March 1997 on the usual IOTA frequencies. The callsign will be VK5ISL.

Steve Pail VK2PS

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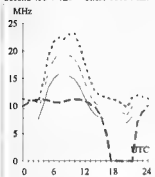
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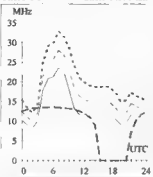
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Adelaide-Capetown 226

Second 4F5-9.4E0 Short 10154 km

**Brisbane-Cairo 288**

First F 0-5 Short 14391 km

**HF Predictions**

Evan Jarman VK3ANI

T Index: 13

These graphs show the predicted diurnal variation in key frequencies for the nominated circuits. They also indicate a possibility of communication (percentage).

The frequencies identified in the legend are:-

Upper Decile (10%)

Maximum Usable Frequency (50%)

E layer Maximum Usable Frequency

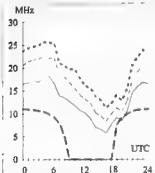
Optimum Working Frequency (90%)

Absorption Limiting Frequency

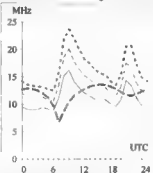
These predictions were made with the Ionospheric Prediction Service Stand Alone Prediction System (ASAPS V3.2). The T index used is shown above the legend. The Australian terminal azimuth, path and propagation mode are also given for each circuit.

Adelaide-Honolulu 57

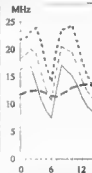
Second 4F6-11.4E0 Short 9160 km

**Brisbane-London 147**

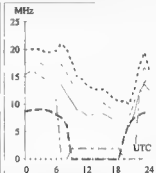
First F 0-5 Long 23498 km

**Canberra-Dakar 214**

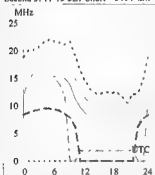
First F 0-5 Short 17361 km

**Darwin-Auckland 130**

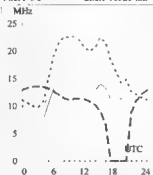
Second 3F12-15.3E2 Short 5135 km

**Adelaide-Singapore 138**

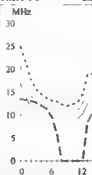
Second 3F11-15.3E1 Short 5414 km

**Brisbane-London 327**

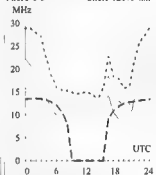
First F 0-5 Short 16526 km

**Canberra-New York 68**

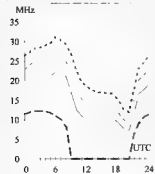
First F 0-5 Short 16218 km

**Darwin-Los Angeles 58**

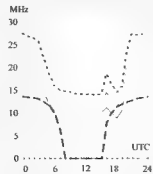
First F 0-5 Short 12693 km

**Adelaide-Tokyo 1**

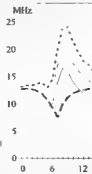
Second 3F4-8.3E0 Short 7855 km

**Brisbane-Seattle 44**

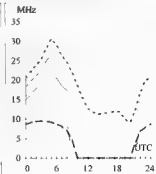
Second 4F2-5.4E0 Short 11845 km

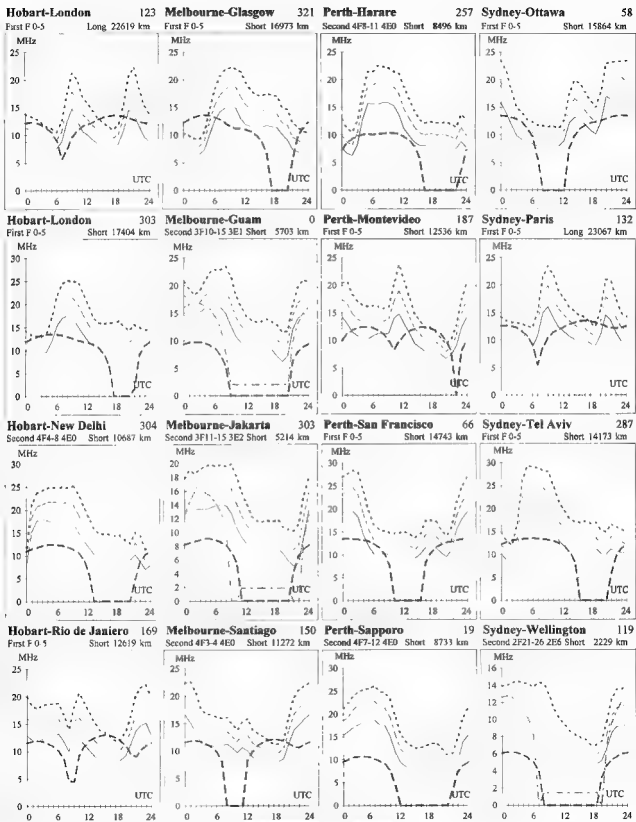
**Canberra-Rome 115**

First F 0-5 Long 23807 km

**Darwin-Tokyo 10**

Second 3F10-16.3E1 Short 5437 km





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• **Yaesu FT-101B**, s/n 43131365, excellent condn, new finals, \$380 **Yaesu FT-101E**, s/n 8L370013, 110 V and 240 V, good order, \$420 **Yaesu FT-757GXII**, as new, original carton and manual, \$880 Bob VK2GZ, QTHR, 044 711 895

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• **icom 2SAT** 2 m hand held with Icom car cig lighter plug-in attachment and 110 volt charger \$350 ONO, Russ White VK3MWR, PO Box 96 Beaconsfield VIC, 08 9796 2601

• **icom IC-775** DSP c/w all optional filters, 12 months old, \$5,250 **icom W31A** H/T, never used, 4 months old, \$650 **Cushcraft R7** 8 band trap vertical, \$650 45 ft Nally windup/tilttower tower, c/w KLM 7 2/10-30-7 log periodic ant and Hy Gam heavy duty rotator with 110 volt transformer, buyer to dismantle, \$2,300 **Kantronics Kam Plus TNC** c/w Hostmaster 11+ software, \$500 **Benchner Gold imbic paddle**, \$180, **Benchner Chrome** straight key, \$125 **Magellan 2000** hand held GPS, new in box, \$300 Approx 200 kg 12 gauge hard drawn copper wire, insulated, \$500 **Seiko world clock**, analogue, \$20. All items in

first class condn, most less than 12 months old, genuine sale due to other interests, Geoff VK3FES, QTHR, 0419 531 157 (licensed hams only for Tx equipment)

• **Radio Amateur Callbook**, 1996 Summer edition on CD-ROM, \$30 Damien VK3RX, 03 5427 3121

• **Estate late VK3CX**, **Yaesu FL-2100B** linear, some spare tubes, \$500 **Yaesu FC-102** ATU, \$200 **Butternut** multi-band vertical antenna, \$175 **Osler Block HF SWR** meter, also UHF unit, \$60 each **Kenwood TM-231** 2 m txcvr, \$450 Lifetime collection of components and accessories, send SAE for list or name wanted items Bill VK3ABP, QTHR, 03 9398 2549

• **Icom IC-575A** 6/10 m SSB/CW/FM/AM txcvr, AC/DC, DDS, PBT, 100 mems, current model, ideal for Limiteds to operate 10 and 6 metres, c/w original packaging, manuals and accessories, \$1200 Adam VK3ALM, QTHR, 015 362 799 or 03 9794 7873

FOR SALE QLD

• **Yaesu FT-101E**, new 6JS6C tubes, s/n 6N240563, incl digital display **Yaesu YC-601E**, s/n 84030483, **Shure h/h mic**; the lot \$650 Henry VK4ICQ, QTHR, 070 921 994

• **Kenwood AT-230** antenna tuner, \$230 ONO, **Outbacker Jr** antenna, 1 2 m long, \$200, **AV-5** 5-band vertical antenna, \$200, 8 band antenna radial kit, \$100 **RS2100** RTTY "scope", \$100 ONO **Dick Smith W502** SWR/Pwr meter, 1.6 - 80 MHz, \$175 **R Etinger VK4DVC**, QTHR, 07 3264 1655

• **Kenwood TS-850S**, CW filters and auto ATU, VGC, \$2,800 Ron VK4CRO, QTHR, 07 3390 7762

• **Icom IC-551** or **IC-551D** optional modules: FM module, \$50; pass-band tune module, \$50 Unmodified and in excellent working order. John VK4KK, QTHR, 07 3269 6647

• **Desk Mike**, 600 balanced output, add a tone control pre-amp to make a fine station mic, several available, \$20.00 each Ron VK4BL, QTHR, e-mail throwp@tpgi.com.au

FOR SALE SA

• **Yaesu FRG-100** comm receiver, includes CW filter and FM board, DC supply, s/n 1H090015, \$700 **Yaesu FT-200** HF txcvr, with PSU, s/n 11321301, \$170 **Clipsal Morse** key, old type, \$60 VK5KXC, 085 224 528

• **Panasonic Professional Super VHS** video equipment: JWMX12 production mixer, \$2000, WV70E camera with dockable AG7450 re, control with battery pack and charger, \$6000, NV-FS1 video cassette recorder, \$500 All as new with cables Would suit weddings or any small to medium video production work **Kenwood TS-820**, \$400 3 5 HD floppy disks, unopened boxes of 10, no brand, surplus stock, \$3.00 each Ian VK5IS, 08 8636 2274 (work), 08 8636 2465 (home)

FOR SALE WA

• Shack clearance due to ill health. VK6AAS has for sale Yaesu FT-101ZD; Yaesu FC-901 antenna coupler and tuner; 6 m triangular mast section with winch up pipe section for further 5 m; mobile 5 band HF antenna; 3 band rotatable dipole; 5 band wire dipole; antenna rotator. Prefer to sell as one lot for \$1000. Contact Peter VK6APS on 096 521 326 all hours.

WANTED NSW

• Command receiver parts for restoration: tuning condenser (3 gang); aerial terminal; 3 IF transformers 2830 kHz; 3 IF transformers 239 kHz; 3 IF transformers 705 kHz; RF coil set 1.5-3.0 MHz; BFO coil box 705 kHz; dial 0.5-1.5 MHz; dial 1.5-3.0 MHz; dynamotor DY2; dynamotor shock mounts; Bowden cable; 2, 7 and 8 pin female connectors; rack; or any junk set of parts - 0.5-1.5, 1.5-3.0, 100-156 MHz preferred. Ray Robinson VK22ZON, 7 Roland Ave, Wahroonga, 02 9489 8561.

WANTED VIC

• 40 channel selector switch (dual gang) for early model Cybernet (02A) chassis CBs. Ben VK4KBC, 03 9536 87460.

WANTED QLD

• Transmitting tubes type 4CX250B/4CX250R series. Good prices paid for good tubes. John VK4KK, QTHR, 07 3269 6647.

WANTED SA

• 3-500Z tubes, \$350 offered for unused pair, postage and insurance paid extra. Kevin VK5BCB, 08 8725 9248, fax 08 8726 6350.

MISCELLANEOUS

• THE WIA QSL Collection (now Federal) requires QSLs. All types welcome especially rare DX pictorial cards special issue. Please contact Hon Curator Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, Tel 03 9728 5350.

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VK QSL BUREAUX

The official list of VK QSL Bureaux. All are Inwards and Outwards unless otherwise stated.

VK1

GPO Box 600 CANBERRA ACT 2601

VK2

PO Box 73 TERALBA NSW 2284

VK3

Inwards

Box 757G, GPO MELBOURNE VIC 3001

Outwards

40G Victory Blvd ASHBURTON VIC 3147

VK4

GPO Box 638 BRISBANE QLD 4001

VK5

PO Box 10082 Gougar St ADELAIDE SA 5001

VK6

GPO Box F319 PERTH WA 6001

VK7

GPO Box 371D HOBART TAS 7001

VK8

C/o H G Andersson VK8HA

Box 619 HUMPTY DOO NT 0836

VK9/VK0

C/o Neil Penfold VK6NE

2 Moss Court KINGSLEY WA 6026

Hamads

Please use a separate form for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code).

- Eight lines per issue free to all WIA members, ninth line for name and address.
- Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment offered for sale should be included in the Hamad.
- QTHR means the address is correct in the current WIA Call Book.

State

- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.

- Commercial advertising (Trade Hamads) are pre-payable at \$25.00 for four lines, plus \$2.25 per line (or part thereof), with a minimum charge of \$25.00.

- Copy typed or in block letters, by the deadlines shown on page 1 of each issue of *Amateur Radio*, to:

Postal: 3 Tamar Court, Mentone VIC 3194

Fax: (03) 9584 8928

E-mail: vk3br@c031.aone.net.au

Please check one box:

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WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

Division	Address	Officers	Weekly News Broadcasts	1997 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601	President Philip Rayner Secretary John Woolner Treasurer Bernie Kobler	VK1PJ VK1ZAO VK1KIP 3.570 MHz LSB, 146.950 MHz FM each Sunday evening commencing at 8.00 pm local time. The broadcast list is available on packet, on Internet www.amateur.misc newsgroup, and on the VK1 Home Page http://www.vk1.org.au/~cmakin/viaact.html	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK2	NSW Division 109 Wigram St Parramatta NSW (PO Box 1066 Parramatta 2124 Phone 02 9689 2417 FreeCall 1800 817 644 Fax 02 9633 1525	President Peter Jensen Secretary Eric Foessey Treasurer Eric Van De Weyer (Office hours Mon-Fri 11.00-14.00 Sat 1000-1300 Mon 1900-2100)	VK2AJL VK2EFY VK2KUR From VK2WJ 1.845, 3.595, 7.146", 10.125, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.170 ("morning only") with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions rely on 2 m or 70 cm repeaters. Sunday 1000 and 1900. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast list is available on the Internet www.amateur.misc , and on packet radio.	(F) \$66.75 (G) (S) \$53.40 (X) \$38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone 03 9885 9261 Fax 03 9885 9298	President Jim Union Secretary Barry Willton Treasurer Rob Haley (Office hours Tue & Thur 0830-1530)	VK3PC VK3XV VK3NC VK3BW broadcasts on the 1st Sunday of the month, starts 10.30 am. Primary frequencies 1.840 AM, 3.615 LSB, 7.085 LSB, and FM/Rjs 146.700 Mt Dandenong, 147.250 Mt Macedon, 147.225 Mt Baw/Baw, and 2 m FM/Rjs VK3RMA, VK3RSH and VK3ROW. 70 cm FM/Rjs VK3ROU and VK3RGL. Major news under call VK3WJ on Victorian packet BBS.	(F) \$75.00 (G) (S) \$61.00 (X) \$47.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone 074 96 4714	President Geoff Sanders Secretary John Stevens Treasurer John Presotto e-mail address: wiaq@tmbris.mhs.qz.au	VK4KEL VK4AFS VK4WV 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 14.342 MHz SSB, 28.400 MHz SSB, 29.220 MHz FM, 52.525 MHz FM, 146.700 MHz FM, 147.000 MHz FM, 438.525 MHz (Brisbane only), regional VHF/UHF repeaters at 0900 hrs Sunday. Repeated on 3.605 MHz SSB & 147.000 MHz FM, regional VHF/UHF repeaters at 1930 hrs EAST Monday. Broadcast news in text form on packet under WIAQ@VKNET	(F) \$74.00 (G) (S) \$60.00 (X) \$45.00
VK5	South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone 08 8352 3428 Fax 08 8264 0463	President Peter Watts Secretary Maurea Hooper Treasurer Charles McEachern Web: http://www.vk5wia.smpg.org/	VK5ZFW VK5EA VK5KDK 1827 MHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mt North, 146.800 FM Midura, 146.825 FM Barossa Valley, 146.900 FM South East, 148.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday: 3.565 MHz and 146.675 MHz FM Adelaide, 1930 hrs Monday: 146.700 FM (Perth), at 0930 hrs Sunday, relayed on 1.825, 3.560, 7.075, 14.116, 14.175, 21.185, 29.680 FM, 50.150 and 438.525 MHz. Country relays 3.582, 147.350(R) Busselton and 146.900(R) Mt William (Bunbury). Broadcast repeated on 146.700 at 1900 hrs Sunday; relayed on 1.865, 3.563 and 438.525 MHz; country relays on 146.350 and 146.900 MHz.	(F) \$75.00 (G) (S) \$61.00 (X) \$47.00
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone 09 351 8673	President Cliff Bastin Secretary Christine Bastin Treasurer Bruce Hedland-Thomas	VK6LZ VK6ZLZ VK6OO 146.700 FM (Perth), at 0930 hrs Sunday, relayed on 1.825, 3.560, 7.075, 14.116, 14.175, 21.185, 29.680 FM, 50.150 and 438.525 MHz. Country relays 3.582, 147.350(R) Busselton and 146.900(R) Mt William (Bunbury). Broadcast repeated on 146.700 at 1900 hrs Sunday; relayed on 1.865, 3.563 and 438.525 MHz; country relays on 146.350 and 146.900 MHz.	(F) \$62.00 (G) (S) \$50.00 (X) \$34.00
VK7	Tasmanian Division 5 Helen Street Newstead TAS 7250 Phone 03 634 42324	President Andrew Dixon Secretary Robin Harwood Treasurer Terry Ives	VK7GL VK7RH VK7ZTI 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs.	(F) \$74.00 (G) (S) \$60.00 (X) \$46.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).		Membership Grades Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)	Three-year membership available to (F) (G) (X) grades at fee x 3 times

Note: All times are local. All frequencies MHz.

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FT-900 Deluxe HF Mobile

The Yaesu FT-900 is a revolutionary new 100W HF transceiver that answers the need for a **truly practical mobile radio**, but without the performance compromises of most micro-sized rigs when used in base station installations.

For convenient mobile operation, a lightweight front sub-panel with access to commonly used controls can be easily mounted away from the transceiver's body using an optional mounting kit. The large "Omni-Glow" backlit LCD screen provides high visibility over a wide range of viewing angles, while the voice and data between the sub-panel and the transceiver are digital to minimise RF feedback or noise pick-up problems. A tough diecast top panel/heatsink and duct-flow cooling systems allows extended transmission periods, while still allowing the optional ATU-2 auto antenna tuner to be mounted inside the transceiver.

In base station uses, the FT-900's performance really shines through. Its superb front-end uses extensive bandpass filters, selectable dual FET pre-amp, and a quad-FET

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Other features include SSB/CW/AM/FM operation, 100 memory channels, 2 VFOs per band, SSB Speech processor with IF shift for audio tailoring, VOX, electronic CW keyer, CTCSS tones for 29MHz FM, and a general coverage receiver (100kHz to 30MHz).

The FT-900 is only 238 x 93 x 253mm (WHD), weighs just 5.5kg, and is supplied with a hand microphone, DC power cable, and detailed Instructions. Cat D-3280



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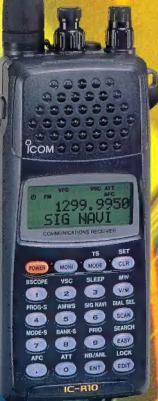
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